EFFECTIVENESS OF NONSUICIDAL SELF-INJURY INTERVENTIONS AMONG INCARCERATED WOMEN IN CORRECTIONAL FACILITIES AND SECURE SETTINGS: AN INTEGRATIVE REVIEW

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ABSTRACT

Introduction: The number of women incarcerated in correctional facilities in Canada has increased over the years. There is also great concern regarding the prevalence of various forms of mental health needs among these women. The rate of self-inflicted injuries has been on the rise among incarcerated women in Canada. Research in the field of non-suicidal self-injury (NSSI) is faced with challenges of different terminologies and definitions used. This has also influenced the estimation of the prevalence of non-suicidal self-injury in the literature. It is also shown that the initiation and motive of NSSI differ from males to females which poses a challenge in determining the type of intervention that will be appropriate for specific individuals. Therefore, it is essential to identify interventions that are effective in managing NSSI among incarcerated women in correctional and secure settings.

Objective: The purpose of this integrative review was to identify interventions that are effective for the treatment of NSSI among incarcerated women in correctional and secure settings. Gaps that require future research will also be outlined.

Methodology: The integrative review method based on Whittemore and Knafl's framework to systematically combine different study types (quantitative, qualitative, and mixed methods) was used. The databases searched included Medline, PubMed, SCOPUS, Web of Science, PsycINFO, Cochrane online library, CINAHL, and Google Scholar. Eleven papers were identified that met inclusion criteria. Descriptors Strong, Moderate or Weak were used to categorize the quality assessment of the included papers. Constant comparison method and thematic analysis were used in the process of data analysis.

Results: The interventions for NSSI for incarcerated women identified as promising are (1) Dialectical Behavioural Therapy (DBT); (2) Group Cognitive Behavioural Therapy (Group CBT); (3) System Training for Emotional Predictability and Problem Solving (STEPPS); (4) staff training and support program; (5) positive and trustworthy prisoner-staff relationships ; and (6) the use of good-bye letters after therapy completion. Other forms of intervention noted are the algorithm of care, and psychodynamic interpersonal therapy (PIT).

Conclusion: In as much as the interventions showed promise in their effect against NSSI, they are not without limitations. Although no evidence-based nursing interventions were identified for the treatment of NSSI among incarcerated women, the above-mentioned interventions are also implemented by nurses in their roles as front-line health professionals. There was no data supporting the effectiveness of gender-specific interventions for women who are incarcerated. The findings of this integrative review suggest the need for further research in this field to identify and implement appropriate interventions for the prevention and treatment of NSSI among this population.

Keywords: Nonsuicidal self-injury, interventions, incarcerated, correctional facilities, secure settings, mental health settings, women

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DEDICATION

This thesis is dedicated to God Almighty.

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I also dedicate this work to all incarcerated women in Correctional and Secure facilities that engaged in non-suicidal self-injury.

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ABBREVIATIONS USED

ACCT: Assessment Care in Custody and Teamwork

APA: American Psychiatric Association

APD: Antisocial Personality Disorder

A-NR: Automatic-Negative Reinforcement

A-PR: Automatic-Positive Reinforcement

BPD: Borderline Personality Disorder

CBT: Cognitive Behavioural Therapy

CSC: Correctional Service Canada (previously known as Correctional Service of Canada)

DBT: Dialectical Behavioural Therapy

DSH: Deliberate Self-Harm

DSM-IV: Diagnostic and Statistical Manual of Mental Health Disorder Fourth Edition

DSM-5: Diagnostic and Statistical Manual of Mental Health Disorder Fifth Edition

FFM: Four-Function Model

ERGT: Emotion Regulation Group Therapy

ISSS: Internation Society for the Study of Self Injury

MACT: Manual-Assisted Cognitive Behavioural Therapy

MI: Motivational Interviewing

NSSI: Nonsuicidal Self-Injury

OCI: Office of the Correctional Investigator

PIT: Psychodynamic Interpersonal Therapy

PSP: Peer Support Program

SBD: Suicidal Behaviour Disorders

SIB: Self-injurious Behaviour

S-NR: Social-Negative Reinforcement

S-PR: Social-Positive Reinforcement

STEPPS: System Training for Emotional Predictability and Problem Solving

UK: United Kingdom

USA: United States of America

Chapter 1 Introduction

Globally, young and adult women make up 6.9% of the global prison population (Walmsley, 2017). In Canada, between the years 2008 and 2018, the population of federally incarcerated women has increased by nearly 30% from 534 to 684 (Officer of the Correctional Investigator (OCI), 2018). It is important to note that it is the responsibility of the Correctional Service Canada (CSC) to manage adult offenders with two or more years sentencing while those with less than two years or youth offenders are the responsibility of the provincial/territorial corrections system (CSC, 2010). The increase in incarcerated women varies from that of male offenders, which shows a decrease of 4% over 10 years from 2008 (OCI, 2018). Most of these women are incarcerated far away from home, making close ties and family relationships challenging to maintain (OCI, 2018). There is increasing concern regarding the challenging mental health needs and behaviours of incarcerated women (OCI, 2018). Recently, research into health issues among incarcerated women revealed that nearly 80% meet the criteria for some form of mental health disorder (CSC, 2017). The highest prevalence rates are recorded in alcohol/substance disorders at 76% and anxiety disorders at 54% among incarcerated women in Canada (CSC, 2017). Borderline Personality Disorder (BPD), Antisocial Personality Disorder (APD), and mood disorder account for 33.3%, 49.4%, and 22.1% respectively among this population (CSC, 2017). Within the past 10 years (2008 to 2018), the rate of self-inflicted injuries among this population of women has also increased dramatically from 79 incidents in 2008 to 305 incidents in 2018 (OCI, 2018), which calls for serious concern.

The study of Nonsuicidal Self-Injury (NSSI) is plagued with so many difficulties, and one of these is the vague and inconsistent use of terms and definitions used in research, which has been a significant hindrance to the development of prevention and treatment programs for this behaviour. In the literature, NSSI is a term that is used to describe self-injury that is non-suicidal. Different terms have been used in the literature to describe this behaviour and include para-suicide, simulated suicide, delicate wrist-cutting, suicidal behaviours, self-aggression, self-mutilation, self-destruction, deliberate self-harm, self-injurious behaviour, and self-harm (Power & Brown, 2010; Power, Brown, & Usher, 2013b). Para-suicide is a term used to describe a non-fatal act directed at harming the body and includes suicide attempt and self-injury also known as self-injurious behaviour (Dixon-Gordon, Harrison, & Roesch, 2012; Linehan, 1993; Nock & Prinstein, 2004). The term para-suicide is also used to denote self-harming behaviours with a low degree of intent to die, while attempted suicide refers to self-injurious behaviours with a strong motive to die (Dixon-Gordon et al., 2012). Self-mutilative behaviour, self-mutilation, and non-suicidal self-injury have also been used to indicate direct and deliberate tissue damage inflicted without conscious intent to die (Dixon-Gordon et al., 2012). Suicide attempts and NSSI are found to have correlated and overlapping risks factors, even though they are distinct behaviours (Muehlenkamp, 2005; Walsh, 2006). Under section III of the *Diagnostic and Statistical Manual of Mental Health Disorder* fifth edition (DSM-5), self-injurious behaviour is classified into NSSI disorder and suicidal behaviour disorder (American Psychiatric Association (APA), 2013). This classification sets NSSI behaviour as a distinct diagnostic entity requiring further study (Glenn & Klonsky, 2013); as well as its definition, which sets the inclusion and exclusion parameters, NSSI behaviour is distinguished from other forms of self-injurious behaviour (Power, 2011). NSSI is defined as "the intentional or deliberate destruction of body tissue without suicidal intent

and for purposes not socially sanctioned" (Klonsky & Muehlenkamp, 2007, p. 1045). This definition explains the intent behind this behaviour and will determine the types of behaviour that are included in this review.

The incidence of NSSI among incarcerated women in correctional and secure settings is of great concern, and on the rise as women prisoners self-injure in greater numbers when compared to males (Brooker, Flynn, & Fox, 2010; Dixon-Gordon et al., 2012; Hawton, Linsell, Adeniji, Sariaslan, & Fazel, 2014). Incarcerated women are a highly vulnerable population, frequently presenting with childhood experiences such as child abuse and sexual abuse; as well as present and past physical and mental health status (Walker, Shaw, Turpin, Reid, & Abel, 2017a). NSSI threatens the safety and well-being of the staff and offenders[1] as incarcerated persons who self-harm may also assault and harm staff as well as other prisoners within correctional and secure environments (DeHart, Smith, & Kaminski, 2009; Power, 2011; Young, Justice, & Erdberg, 2006). The occurrence of NSSI is direct because the result of the self-injury occurs without intervening steps (Nock & Favazza, 2009). For instance, an individual cutting the skin with a sharp object represents direct self-injury whereas alcoholism or tobacco smoking are behaviours that indirectly result in adverse health outcomes as a result of chemical changes in the body system (Nock & Favazza, 2009). The behaviours that are included under NSSI are cutting, burning, scratching, self-hitting, headbanging, slashing, stabbing, consumption of non-digestible materials, and insertion of objects into existing orifices or artificial orifices (Cheng, Mallinkrodt, Soet, & Sevig, 2010; DeHart et al., 2009; Dixon-Gordon et al., 2012; Power, Smith, & Beaudette, 2016; Shelton, Bailey, & Banfi, 2017; Smith & Kaminski, 2011).

[1] The terms offender, inmate, imprisoned person, or incarcerated person are used interchangeably throughout this thesis.

NSSI is seen as a "protective" method developed by an individual to cope with emotional distress or life (i.e., the function of this behaviour is to regulate mostly negative emotions) whereas, during suicide, the intention is to terminate one's life (Borrill et al., 2003; Gratz, 2003; Smith & Power, 2015). NSSI is a significant predictor of future suicide or accidental death among the offender population while imprisoned and post-release into the community (Selby, Kranzler, Fehling, & Panza, 2015). Between 2012 to 2013, of the 901 incidents of recorded self-injury involving 264 offenders, 37 women accounted for 36% of the reported cases (OCI, 2013). Currently, the incidence of self-injury among federally incarcerated women in Canada has nearly quadrupled between 2008 and 2018 from about 79 to 305 cases involving 60 different women (OCI, 2018). Several motives such as anxiety, anger, frustration, depression, feeling upset, loneliness, helplessness, feeling guilty, and dissociation exist behind this behaviour (Power, Brown, & Usher, 2013a; 2013b). Of the known rationale, Klonsky and Muehlenkamp (2007) consider affect-regulation (a means of regulating negative emotions), as the most significant. Among offenders, it was found that NSSI is carried out more for the primary purpose of regulating negative emotions (Dixon-Gordon et al., 2012).

Various treatment strategies have been evaluated for use in the general community, but only a few of these have led to a significant decrease in repeated self-injury (Kapur, 2005; Walker et al., 2017a). In an incarcerated population made up of adult males and females, the initiation, motivation, and causative factors of NSSI differ (Power et al., 2016). For instance, men engage in NSSI to access resources and control their movement to other facilities or away from other inmates, while women self-injure as a means of self-expression when communication is absent (Power et al., 2016). These may pose a challenge in the management and treatment of NSSI in such a population, especially for female offenders, whose prevalence rate is on the rise.

Following a systematic review of the literature, Dixon-Gordon et al. (2012) concluded that there is no reliable method of assessment to identify individuals at risk of NSSI among the incarcerated population. As reported by Wakai, Sampl, Hilton, and Ligon (2014), most of the policies, programs and interventions in correctional facilities were developed for male prisoners and then applied to female prisoners. Furthermore, Walker, Shaw, Turpin, Roberts, Reid, and Abel (2017b), concluded there are no evidence-based self-injury interventions that exist currently for imprisoned women in correctional and secure settings.

Therefore, knowing that the interventions used for women are generally the same as that for men, and since their motive for engaging in NSSI behaviour and factors differ, the results may also be different. From the report of existing research on the prevalence and adverse outcomes of NSSI among incarcerated women in correctional facilities and secure settings, supporting evidence detailing the precise effectiveness of treatment modalities targeting this population is lacking in Canada and beyond. Hence, it is particularly necessary to determine the efficiency of treatments specific to female offenders who engage in NSSI behaviours in correctional and secure settings. This will help to ascertain why female offenders engage in repetitive self-injurious behaviour, and why there is a high prevalence or incident rate of NSSI despite the available methods of treatment interventions. From an overview of the literature, there are available methods of intervention currently used among women offenders, but the effectiveness of these interventions is not known.

The purpose of this integrative review is to synthesise information on the efficacy of NSSI interventions for incarcerated women in correctional and secure mental health facilities. The results of this review will provide information necessary to assist in the development of methods of intervention for this group of women and to improve evidence-based practice for

their care. Gaps in current literature will also be identified to direct future research in this field as well as preliminary practice recommendations based on the review results.

Chapter 2 Literature Review

Nonsuicidal self-injury (NSSI) is a complicated behaviour that calls for action (Smith, Sitren, & King, 2019). Correctional staff attending to incarcerated persons who engaged in self-injury experience a range of negative emotions including: despair, annoyance, fear, sadness, anger, frustration, guilt, disgust, and helplessness (DeHart et al., 2009; Smith & Kaminski, 2010; 2011; Smith et al., 2019; Young et al., 2006). Although it has been established in the literature that there is an increase in the repetition and incidence of self-injury within the female prison population, among the interventions mentioned, there is no method of control, treatment, and management listed as effective in targeting this population in a correctional or secure mental health environment.

This integrative review provides knowledge regarding the effectiveness of interventions targeting incarcerated women. In this chapter, the following areas crucial to how the effectiveness of the interventions for NSSI among imprisoned women in correctional and secure facilities can be achieved will be addressed. In the first section, research related to the definition of terminologies used in this field will be reviewed. In the second section, the age of NSSI onset/demographic profile and NSSI in the offender population will be discussed. In the third section, research studies related to the prevalence of NSSI among incarcerated women will be reviewed. Finally, the last section will focus on research related to the functions and risk factors of NSSI with reference to gender (i.e. females) and how gender influences interventions.

2.1 Definitions of Term

Differences in the terms and definitions used in research on NSSI have been a significant hindrance to the development of prevention and treatment programs. The differences in

operational definitions used in research in this field have made it challenging to define the actual parameters of NSSI behaviour (Heath, Toste, Nedecheva, & Charlebois, 2008). Various terminologies used to describe this behaviour are self-injurious behaviour (SIB), para-suicide, suicidal behaviours, self-aggression, self-destruction, self-mutilation, simulated suicide, delicate wrist-cutting, deliberate self-harm, non-suicidal self-injury, and self-harm (Corabian, Appell, & Wormith, 2013; Klonsky, 2007; Klonsky, Muehlenkamp, Lewis, & Walsh, 2011; Power, 2011; Power & Brown, 2010; Power et al., 2013a). Previously, para-suicide was used to describe the nonfatal act directed at harming the body and included suicide attempt and self-injury (also known as self-injurious behaviour) (Dixon-Gordon et al., 2012), and in general, is no longer used in most countries (Hawton et al., 2016). According to Klonsky et al., (2011), self-harm is also known as self-injurious behaviour (SIB), self-mutilation, non-suicidal self-injury (NSSI), para-suicide, deliberate self-harm (DSH), self- abuse, and self- inflicted violence.

Among these numerous terminologies used in defining NSSI, there is extensive overlap in their definitions. In 2018, the International Society for the Study of Self Injury (ISSS) put forward this definition for NSSI:

As the deliberate, self-inflicted damage of body tissue without suicidal intent and for purposes not socially or culturally sanctioned. This definition has several important parts: First, the harm that results from self-injury is an intentional or expected consequence of the behaviour. Risky behaviours that could result in harm, such as not wearing a seatbelt while driving or accidental harm that may occur when playing extreme sports are typically excluded in our definition. Second, self-injury usually results in some immediate physical injury, including cuts, bruises, scratches, or marks on the skin. Behaviours that do not directly result in injuries are usually excluded, even though they

> may be harmful or dangerous. For instance, food restriction is typically not considered a form of self-injury since the associated physical damage tends to build up over time instead of happening all at once when the behaviour occurs. Third, self-injury is separate from suicidal thoughts or behaviours, in which individuals want to end their lives. People usually report that they have no expectation or intention to cause death when they engage in self-injury. In fact, in some cases, self-injury may be used to manage intense distress that may associate with suicidal thinking. Finally, behaviours that might cause physical damage but are acceptable in our society, or part of a recognized cultural, spiritual or religious ritual, are not considered self-injury. For this reason, body modification, body piercing or tattooing are not usually considered forms of self-injury (ISSS, 2018, para.1).

Therefore, NSSI is seen as a type of self-harming behaviour.

Self-harm is defined as "a preoccupation with deliberately harming oneself without conscious suicidal intent, often resulting in damage to the body tissue" (Muehlenkamp, 2005, p.324). According to Hawton et al. (2016), self-harm is used to involve all non-fatal intentional self-poisoning or self-injury regardless of the extent of suicidal intent or motivating factors behind the behaviour. The DMS-5 classification of behaviour disorders categorises NSSI under self-harming behaviour, which is classified as non-suicidal self-injury disorder and suicidal behaviour disorders (SBD) (APA, 2013). Based on this, many researchers and clinicians as stated by Hawton et al. (2016), are confident that this categorization is ambiguous, hence in some countries like the UK, the preferred term used is self-harm. As such, all intentional self-harming is conceptualised as self-harm, while suicidal intent is considered a dimension and not a category within self-harm (Hawton et al. 2016). In Canada and the United States of America (USA), the common terms used in research are self-injurious behaviour, non-suicidal self-injury, and self-

harm. SIB on its own refers to deliberate direct bodily harm not considered socially sanctioned that results in unambiguous consequences and where the intent is unknown or indeterminable (Corabian et al., 2013; Power, 2011; Usher, Power, & Wilton, 2010). SIB involves self-injury in which the intention to die or not cannot be ascertained or known. Therefore, self-harm is a label used broadly to encompass SBD and NSSI (Corabian et al., 2013; Hawton et al. 2016; Power, 2011). Also, it is crucial to note that even though NSSI is included in the definition of self-harm, it cannot equate to other self-harming behaviours such as food restriction or drinking among others (Heath et al. 2008). Moreover, since the intention behind the behaviour is a crucial aspect in distinguishing between suicide attempts and NSSI (Gratz, 2001); for this integrative review, the term NSSI as defined by Klonsky and Muehlenkamp (2007) will be used as the operational definition. These authors define NSSI as "the intentional or deliberate destruction of body tissue without suicidal intent and for purposes not socially sanctioned" (Klonsky & Muehlenkamp, 2007, p. 1045).

2.2 Age of onset/Demographic profile

From the existing research among the general population, individuals who engage in either NSSI or SIB are most likely to be young, caucasian, and economically disadvantaged (Lodebo, Moller, Larsson, & Engstrom, 2017; Klonsky & Meuhlenkamp, 2007; Skegg, 2005). NSSI has been said to occur in preadolescence through adulthood (Hilt, Nock, Lloyd-Richardson, & Prinstein, 2008; Taliaferro & Meuhlenkamp, 2015). The age of NSSI onset is reported in some research in the general population as on or before age 12 (Ammerman, Jacobucci, Kleiman, Uyeji, & McCloskey, 2018; Muehlenkamp, Xhunga, & Brausch, 2019). The onset of NSSI at or before age 12 is associated with severe forms of NSSI and is also seen as a critical age for prevention (Ammerman et al., 2018). Some studies have reported variation in the age of NSSI

onset. In the study of Heath and colleagues (2008) among university students, approximately 20% reported engaging in NSSI between ages 11 and 13, while 17% began NSSI over the age of 20. In a systematic review by Plener, Schumacher, Munz, and Groschwitz (2015), the incidence of NSSI rises steadily up to age 12, climax between ages 14 and 16, and declines around age 18. Another research recorded ages 14 and 15 as the ages for NSSI onset with a decline in NSSI around age 18 (Gandhi et al., 2018). The onset of NSSI between ages 18 and 20 is also reported as the second most common age for engaging in NSSI compared to age 12 (Gandhi et al., 2018; Whitlock et al., 2011).

Among the incarcerated population the NSSI age of onset is between 13 and 16 years, respectively, which makes it common among the adolescent population (Klonsky & Meuhlenkamp, 2007; Skegg, 2005; Ward & Bailey, 2013). Early-onset at age 11 to 16 years was also found in the study by Walker and colleagues (2017a) among incarcerated females who started engaging in self-harm before their incarceration. The older population (age 60 and above) are less likely to engage in SIB or NSSI. Still, the consequences are more grievous for older adults who self-injure as they are more likely to die by suicide than the younger population (Usher et al., 2010). In a recent systematic review by Troya and colleagues (2019), the rate of self-harm repetition and suicide among older adults between 60 and 74 years is increased, and this may be attributed to past and present psychiatric treatment and sociodemographic factors such as being single, living alone, and younger older adults.

In a study by Skegg (2005), individuals who identified as gay, bisexual or lesbian were also more likely than those who are heterosexual to engage in self-injury (Skegg, 2005). The report of Skegg (2005) is supported by recent research which also reported a higher risk for NSSI among this group compared to the heterosexual population (Jackman & Bockling, 2016). Over a 13 year

period (2005-2017), the rate of NSSI among sexual minorities was between 35% to 55% while that of the heterosexual was 11% to 20% (Taliaferro & Muehlenkamp, 2017; Liu, 2019).

The incidence of SIB among women offenders is associated with a history of a severe and lengthy criminal history (Wichmann, Serin & Abracen, 2002; Usher et al., 2010). These women were more likely to have been imprisoned because of violent offences and have one or more past convictions (Usher et al., 2010). Adjustment in the institution when placed in disciplinary confinement or segregation, being assigned to a higher security level, categorized as higher risk for SIB, and a history of escape-related behaviours, are problems faced by women offenders who self-injure (Power & Brown, 2010; Power, 2011; Usher et al., 2010). The effect of institutionalization on NSSI or SIB is still unclear. It is yet to be determined in research whether individuals start engaging in NSSI before incarceration or after, and if there is an increase or decrease in self-harming if it began before imprisonment or not (Power & Brown, 2010; Usher et al., 2010).

2.3 Prevalence of NSSI

Variance in the prevalence and incidence in studies on NSSI are said to exist mostly in correctional institutions; and are attributed to several factors. Firstly, is the lack of consensus in the terminologies and definitions used in extant literature which can lead to the overestimation or underestimation of the results (Power, 2011; Power et al., 2013b; Rodham & Hawton, 2009). Secondly, and related to the first, is that the terms used to describe self-injury in research are at times left undefined (Rodham & Hawton, 2009). Thirdly, the method of data collection is based on self-reporting by the individuals and feelings of shame related to NSSI may both lead to underreporting (Hawton et al., 2014; Power et al., 2013b). In addition, in a nonclinical population, the actual occurrences of self-injury are unknown, because some individuals may be

"ashamed" and "secretive" of their actions, and most of the self-injuries might not require medical treatment hence not recorded (Power et al., 2013b; Rodham & Hawton, 2009). Fourthly, the publication of NSSI appears in a variety of speciality journals making the accessibility of relevant literature for review of prevalence difficult (Power, 2011). Lastly, in correctional institutions, the imprisoned population is growing making it challenging to determine accurate results, and researchers may use the average number of occupied beds, number of admissions to hospitals or facilities, average daily population, average length of days incarcerated to calculate prevalence rates resulting in differences in estimations (Power, 2011).

In a study addressing NSSI in the USA, Klonsky (2011), reported that about 4% to 5.9% of adults in a nonclinical population have engaged in self-injury at least once in their lives. Other researchers have also reported several estimates of the prevalence of NSSI for different sample populations. In Turner, Austin, and Chapman (2014, p.577), NSSI is reported as high among pre-adolescents and adolescents with the rate of 7.7% and 13.9% to 35.6%, respectively (Hilt et al., 2008; Laye-Gindhu, 2005; Muehlenkamp & Gutierrez, 2004).

The rate of NSSI in prisons exceeds that in the general population, typifying a pressing "prison-related" health care need (Knight, Coid, & Ullrich, 2017). NSSI prevalence ranged from 12% to 82% in a clinical sample population of psychiatric patients (Jacobson, Muehlenkamp, Miller, & Turner, 2008; Klonsky & Muehlenkamp, 2007; Nock & Prinstein, 2004; Washburn et al., 2012). Dixon-Gordon and colleagues (2012, p.33) showed that NSSI represents about 7% to 48% in a population of imprisoned individuals. And it is also estimated that approximately 15% to 17% of imprisoned males have engaged in SIB during their lifetime, whether with suicidal or non-suicidal intent (Fotiadou, Livaditis, Manou, Kaniotou, & Xenitidis, 2006).

More specifically with reference to women, it is reported that detained women are about 2 to 5 times more at risk of engaging in NSSI behaviours than men while incarcerated (Dixon-Gordon et al., 2012; Fox et al., 2015; Hawton et al., 2014; Knight et al., 2017; Snow, 2006). A book by Blanchette and Brown (2006) on women's issues in corrections revealed that whether in custody or not, women tend to engage more in self-harming behaviours in comparison to men. An investigation into the incidents of self-injury across the Correctional Service Canada between the year 2006 and 2008 found that the incidents increased from 197 to 341 cases within that period, and imprisoned women were more likely to self-harm more than once compared to their male counterparts (Gordon, 2010). Currently, the number of federally incarcerated women who engaged in self-inflicted injury has tripled (OCI, 2018). In a systematic review by Shelton, Bailey and Banfi (2017), female offenders in the United States and the United Kingdom (UK) were less likely to engage in self-harm compared to male offenders. Contrary to this, a recent study by Knight et al. (2017) found that in UK prisons, the reverse is the case because the prevalence of NSSI is found to be higher among female offenders currently serving prison terms than the males - a rate of 9.6% (female) and 5.7% (male). The finding by Knight et al. (2017) is consistent with that found in a systematic review by Dixon-Gordon et al. (2012) where females have a prevalence rate between 9% and 18% while incarcerated. In a study that explored the pathways of self-harm following childhood trauma, Howard, Karatzias, Power and Mahoney (2017), found that among 89 imprisoned women the rate of self-harm was about 58.4% indicating a high prevalence. In another research study of women in England and Wales, Walker et al., (2017a) reported that while women made up about 4.5% of the prison population, they were more likely to engage in self-harming behaviours than their male counterparts, at a rate of 191 incidents per 100 female prisoners compared to 29 for males. These researchers also

demonstrated that within a year about 30% of women deliberately self-harmed compared to 10% of men, and the frequency is about 6.4 per self-harming female offender to 3.0 for the male offender (Walker et al., 2017a). Lifetime prevalence rates of NSSI among female offenders in Canada, taken from archival and field studies, are between 24% and 38%, and among this group about 80% to 86% had a previous history of NSSI behaviour in the community before incarceration (Power et al., 2013b). Power et al. (2013b) also concluded that the practice of NSSI behaviour among women offenders is probably a continuation of behaviours previously displayed in the community, before their imprisonment.

2.4 Functions of NSSI

Several motives are proposed in the extant literature for individuals engaging in NSSI behaviours as supported by empirical studies. The Four-Function Model (FFM) proposed by Nock and Prinstein (2004; 2005), provides a pathway for understanding the motivations behind NSSI that could be employed in training, inform management, and therapy strategies (Power et al., 2016). Under this model, the functions of NSSI are categorised by two diploid factors specifying that the reinforcement of NSSI can either be:

1) positive (involving the addition of a favourable stimulus) or negative (involving the removal of an aversive stimulus); or
2) automatic (i.e. intrapersonal) or social (i.e. interpersonal) (Power et., 2016)

Hence the functions are grouped into four categories: (a) Automatic-negative reinforcement (A-NR); (b) Automatic-positive reinforcement (A-PR); (c) Social-negative reinforcement (S-NR); and (d) Social-positive reinforcement (S-PR) (Power et al., 2016). A-NR happens when an individual utilizes NSSI to reduce negative emotions or tension (stopping bad feelings) (Nock & Prinstein, 2004; Power et al., 2016). In A-PR, the individual uses NSSI to

generate a fascinating (desirable) physiological state (experiencing pain in order to relieve the feeling of numbness or dissociation) (Nock & Prinstein, 2004; Power et al., 2016). In contrast to the automatic reinforcing, social reinforcement functions refer to the use of NSSI to regulate one's social environment (Nock & Prinstein, 2004). S-NR motivates the utility of NSSI to escape interpersonal demands (the avoidance of punishment from others or of doing something unpleasant) whereas S-PR for NSSI involves attention-seeking or access to material goods (Nock & Prinstein, 2004; Power et al., 2016).

Among the incarcerated population, the FFM can be used to organise the functions of NSSI. In research by Power et al. (2016), Automatic-negative reinforcement (A-NR) was found to be the most common function of NSSI used by the offenders. This corresponds to a review by Klonsky, (2007) which considers affect-regulation (a means of regulating negative emotions) as the most significant in all populations. It was also found that NSSI was carried out for the primary purpose of regulating negative emotions among offenders in a systematic review by Dixon-Gordon et al. (2012). According to Smith and Power (2015), NSSI is often developed by an individual experiencing negative emotions as a coping mechanism since it offers benefits (physical and physiological) for offenders experiencing strong negative emotions such as anxiety, anger, frustration, depression, feeling upset, loneliness, helplessness, feeling guilty, dissociation (Power, 2013a; Power et al., 2016). Distress is also found to be a negative emotion (Dear, 2008; Power et al., 2016). Automatic-positive reinforcement (A-PR) as a function was also reported among the imprisoned population as sensation seeking and self-punishment, and control/empowerment (Power et al., 2016). As a function of NSSI, Social-negative reinforcement (S-NR) involving the ability to hurt oneself instead of others, is least reported among offenders in the study by Power et al. (2016). The Social-positive reinforcement (S-PR) category reveals

offenders' intent to use NSSI as a means of communication where language is absent (Power et al., 2016). Gender differences are noted as males tend to use NSSI to access resources and control movement, while females make use of NSSI to express one's self (Power et al., 2016).

2.5 Risk factors associated with NSSI

Mental health symptoms and diagnoses are not unusual occurrences in individuals who engage in self-injury because these individuals are a heterogeneous group that display different psychological issues (Klonsky, Oltmanns, & Turkheimer, 2003; Power, 2011). Some psychological disorders have been found to be correlated with NSSI. NSSI is a condition that is associated with borderline personality disorder (BPD) although it is now accepted as a separate diagnostic entity from suicidal self-injury (Andover, Schatten, & Morris, 2018; Glenn & Klonsky, 2013). Evidence shows that people who engage in self-injury display symptoms of BPD when compared to those who do not (Andover, Pepper, Ryabchenko, Orrico, & Gibb, 2005; Klonsky et al., 2003). In the DSM-IV classification of NSSI, NSSI is seen as a diagnostic criterion for BPD (APA, 2000), and the rates of NSSI in individuals diagnosed with BPD have been shown to be as high as 75.7% (Andrews, Halbert, Cotton, Betts, & Chanen, 2017). Even though NSSI is associated with BPD, not everyone who engages in NSSI has BPD (Glenn & Klonsky, 2013; Slesinger, Hayes, & Washburn, 2019). Studies have shown that the rates of BPD in NSSI ranges from 52% in a sample of individuals examined to approximately 78% (Glenn & Klonsky, 2013; Selby, Bender, Gordon, Nock & Joiner, 2012). However, a more severe presentation of NSSI is found with individuals with co-occurrence of BPD (Slesinger et al., 2019). Other correlates include bipolar disorder, obsessive-compulsive disorder, post-traumatic stress disorder, antisocial personality disorder, psychosis, impulsivity, anger and aggression, depression, anxiety, eating disorder, same-sex attraction, and homosexuality (Andover et al.,

2005; Corabian et al., 2013; Power & Usher, 2011; Power, 2011; Power et al., 2013b; Smith & Kaminski, 2010; Young et al., 2006). An individual may also exhibit NSSI behaviour as a response to severely devastating and tumultuous childhood experiences over time, such as childhood sexual abuse, physical abuse, domestic violence, family neglect (Smith & Power, 2015); and antisocial influences, school and vocational failure, and substance abuse (Eccleston & Sorbello, 2002). The age of NSSI onset is also seen as a risk factor for engaging in severe forms of NSSI and potential suicidal behaviour (Muehlenkamp et al., 2019). This is related to early onset of NSSI as the individuals carry out more lifetime acts of NSSI, have greater method of engaging in NSSI, and presents with medically severe forms of NSSI compared to those that began later in life (Muehlenkamp et al., 2019).

In an incarcerated population made up of adult males and females, the initiation, motivation, and causative factors of NSSI differ (Power et al., 2016). These may pose a challenge in the management and treatment of NSSI in such a population. Based on their review of the literature, Dixon-Gordon et al. (2012) concluded that there is no reliable method of assessment to identify individuals at risk of NSSI among the incarcerated population. A recent integrative review found dialectical behavioural therapy (DBT), staff training, and cognitive behavioural therapy (CBT) as being effective treatments for NSSI among a detained population (Shelton et al., 2017). However, as reported by Wakai et al., (2014), most of the policies, programs and interventions in correctional facilities were developed for male prisoners and then applied to female prisoners. Knowing that the initiation, motive of engaging in NSSI behaviours, and precipitating factors of NSSI may vary between males and females, there is a probability that the same interventions may produce different results among them. Therefore, it is particularly necessary to determine the efficiency of treatments specific to the female offenders that engage

in NSSI behaviours in correctional settings to ascertain why female offenders engage in repetitive self-injurious behaviour; and the high incident of NSSI that occurs despite the available methods of treatment.

Chapter 3 Methodology

3.1 Research Statement and Research Questions

Effective management, treatment, and prevention of NSSI among incarcerated females in correctional facilities, mental health, and forensic settings are paramount to ensure the safety of both the offenders and staff. From current studies, the rates of NSSI is alarming among imprisoned females, therefore finding out how effective the interventions are for this particular population is critical. As a result of this, the purpose of this integrative review was to 1) synthesise information on the efficacy of NSSI interventions for incarcerated women; 2) guide future research on the effectiveness of NSSI interventions among incarcerated women; 3) instruct and improve evidence-based practices within correctional, mental health, and forensic facilities. Since most researchers have used various terms and definitions in their research, this integrative review will focus on the term NSSI, and the definition proposed by Klonsky and Muehlenkamp (2007) which states that NSSI is "the intentional or deliberate destruction of body tissue without suicidal intent and for purposes not socially sanctioned" (Klonsky & Muehlenkamp, 2007, p. 1045) and only include studies that define and include this type of behaviour. The following research questions drive this review:

- Are interventions addressing NSSI among incarcerated women in correctional, secure mental health, and forensic facilities effective?
- Are reported NSSI interventions gender-specific?
- Are the NSSI interventions reported designed explicitly for NSSI behaviours among incarcerated women?
- What is the role of nursing in the implementation of NSSI interventions and management of NSSI among the incarcerated population?

3.2 Relevance of the Study

An integrative literature review provides a collective way of generating new frameworks, a more extensive scope of an identified phenomenon, and generates new knowledge on a specific topic (Torraco, 2005; Whittemore & Knafl, 2005). The findings from this integrative review will provide insight into factors relevant to the development and implementation of NSSI interventions for females within correctional, mental health, and forensic facilities, and contribute further to healthcare professionals understanding of NSSI behaviours and how to identify individuals at risk for NSSI. It may also assist in innovative prison health research, evidence-informed policy, and possible evidence that will lead to future clinical guidelines in the management of women engaging in NSSI while in prison. Studies regarding NSSI intervention are still burgeoning, and to the best of the researcher's knowledge, this integrative review is the first to synthesise knowledge on the effectiveness of NSSI intervention in incarcerated women exhibiting NSSI behaviour. It will also identify gaps that require further exploration, as well as preliminary practice recommendations based on the review results. Moreover, identifying factors that motivate NSSI behaviour, and whether there are gender-specific issues amongst incarcerated adults engaged in NSSI, may improve the outcomes of the interventions.

3.3 Integrative Review Method

An integrative review approach was used in this study to synthesise knowledge related to interventions for NSSI among incarcerated females in correctional, secure mental health, and forensic facilities. Integrative reviews enable the collective gathering of new knowledge in a precise area of research to provide a broad understanding of an identified health care need (Broome, 2000; Russell, 2005; Whittemore & Knafl, 2005). Although systematic reviews remain the "method of choice for evidence-based practice initiatives" like the effectiveness of

interventions (Whittemore & Knafl, 2005, p. 547), however, since the research in this field is still developing, an integrative review method was used in this study. This is because a preliminary literature search on the interventions for NSSI for women who are incarcerated yielded only a small number of quantitative, qualitative, and mixed methods studies and reviews. An integrative review is the "broadest type of research review methods allowing the simultaneous inclusion of experimental and non-experimental research to more fully understand a phenomenon of concern" (Whittemore & Knafl, 2005, p. 547). The methodological framework outlined by Whittemore and Knafl (2005) is used to guide the structure of this review. The following components provided the framework for this review: problem identification, literature search, data evaluation, data analysis, and presentation of findings. The purpose of delineating these stages is to enhance the rigour of the integrative review when the inclusion of diverse methodologies are part of the process (Whittemore & Knafl, 2005).

3.3.1 Problem Identification

Explicit recognition of the research problem area of a review is significant to systematically direct the whole process of the review (Whittemore & Knafl, 2005). Extraction of appropriate data from relevant sources is made possible if the problem and purpose of the review are appropriately identified (Whittemore & Knafl, 2005). The problem area designated for this study is that despite the possible interventive approaches for NSSI among the incarcerated population, there are no recognised effective treatments targeting women in correctional, mental health, and forensic environments that effectively prevent the occurrence of or the management of NSSI in this population. Hence, addressing the identified research questions will provide knowledge regarding the identified problem.

3.3.2 Literature Search

A thorough literature search is essential to ensure the rigour of any review to avoid an incomplete search and biases that can lead to inconclusive results (Whittemore & Knafl, 2005). A comprehensive search strategy was developed with the help of a University of Saskatchewan health sciences librarian. Keyword searching and mapping was done within eight electronic databases before the commencement of the final search. The first search was done between December 22, 2017, and February 25, 2018. Medline, PubMed, SCOPUS, Web of Science, PsycINFO, Cochrane online library, CINAHL, and Google Scholar were searched from 2000-2018. Search queries consisted of keywords: Non-suicidal self-injury (and synonyms), and intervention (and synonyms), and incarcerated (and synonyms) (see Table 1).

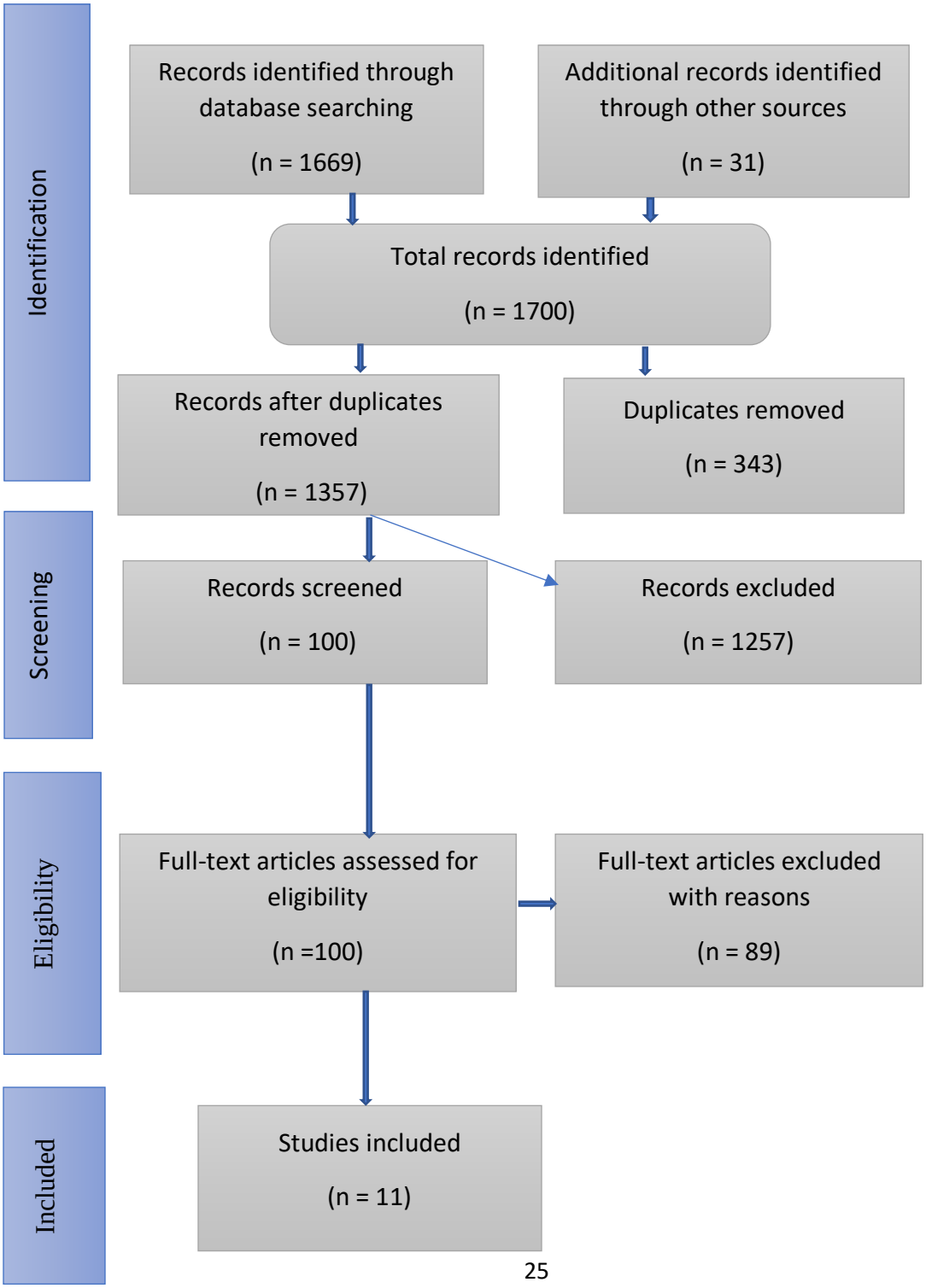
Table 1: Keywords/ terms used in searching databases

Search	Keyword	Terms
#1	Non-suicidal self-injury	Self-injurious behaviour OR self-mutilation OR self-harm OR deliberate self-harm OR para-suicide OR intentional self-harm OR self-cut* OR self-burning OR near-lethal self-harm OR self-inflicted injur* OR self-destructive behaviour OR self-destruction
#2	Intervention	Treatment OR treatment effectiveness OR treatment outcome OR nursing intervention OR management OR pathway of care OR behavioural therapy/intervention
#3	Incarcerated	Prison OR imprisonment OR offender OR incarcerat* OR correction* facilit* settings OR jail OR penal institution OR forensic settings OR secure settings OR mental health facilit*
#4	Women	Women OR female
#5	#1 AND #2 AND #3 AND #4	

Two additional searches were undertaken. First, a Google web search to identify any additional literature. And secondly, a search through the Open Grey website was also used to

identify grey literature (any unpublished literature) to ensure no relevant paper was left out. Papers that met the inclusion criteria were identified, and subsequently, their reference lists and citations were also searched to identify any additional papers for inclusion. Nine months later, between November 2018 and February 2019, a second search was conducted to ensure a thorough search. The same search strategy was applied with the date from 2000 to 2019. However, the setting, as well as the term NSSI, was broadened to include forensic and mental health institutions and self-harm to ensure no relevant paper was missed by settings or terms used in the search. The search citations and abstracts were then imported into EndNote X8 or manually entered. Duplicates were removed, and full-text papers added. Figure 1 below shows a Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) diagram of articles searched and included studies.

Figure 1: PRISMA diagram of articles searched and included studies (Moher, Liberati, Tetzlaff, & Altman, 2009)



3.3.2.1 Eligibility criteria of articles used

The papers included in this integrative review were based on the following:

Inclusion criteria:

- Peer-reviewed papers and government documents or reports on NSSI intervention among incarcerated women;
- Studies conducted on NSSI interventions for incarcerated adults in correctional facilities and medium secure settings;
- Studies that discussed both NSSI and suicide attempt and differentiated their interventions;
- Studies that used other terms such as self-harm as an operational definition;
- Studies published in the English language between the year 2000 to 2019; and
- Both quantitative, qualitative and mixed methods studies were incorporated

Exclusion criteria:

- Papers not published in the English language and studies that did not differentiate between NSSI and suicide.

3.3.2.2 Search Outcome

Based on the extent of information available on NSSI, the search strategy identified 1669 papers for possible inclusion from the previously identified databases. The titles and abstracts were screened using the inclusion and exclusion criteria set out for the review. A two-phase process was used to identify and screen papers for inclusion. Initially, after collation, duplicates were removed after uploading the results into EndNote X8, leaving 1357 titles and abstracts for review. Screening of the titles and abstracts was carried out by two independent reviewers (the graduate student and her supervisor).

After this process, the full-text articles (FTAs) of the 96 remaining studies were retrieved for further review. The FTAs were read thoroughly and assessed for eligibility by the two reviewers using the inclusion criteria. After reading through the FTAs, four additional papers were identified for further review and consequently included at this stage, making a total of 100 FTAs. Four of the FTAs were excluded as they were literature reviews and the remaining 85 did not meet the criteria for inclusion as they were either papers only including male offenders, studies that didn't differiate between NSSI and suicide, and studies not within correctional or secure settings. At the end of this phase, 11 papers met the inclusion criteria of this review and were included in the final review, as shown in figure 1.

3.3.3 Data Quality Evaluation

The 11 papers that meet the inclusion criteria were critically evaluated for quality by the two independent reviewers (i.e., the graduate student and the supervisor). For integrative reviews, there is no best available method (gold standard) for conducting data appraisal (Conn & Rantz, 2003). This is because when using an integrative review methodology, the inclusion of different methods of studies to comprehend a healthcare problem better are included. However, considering the sampling frame which may include empirical and theoretical studies, the appropriate method possible will be "the approach of historical research, examining authenticity, methodological quality, informational value, and representativeness of primary sources" (Whittemore, Chao, Jang, Minges, & Park, 2014, p. 458). For quantitative research articles included in this review, the Quality Assessment Tool for Quantitative Studies (Effective Public Health Practice Project (EPHPP), 1998), was used (see Appendix A). This tool has been found to have a strong methodological rating and has met standards for both reliability and validity (National Collaborating Centre for Methods and Tools, 2008; 2017). The quality assessment tool

for quantitative studies dictionary (EPHPP, 2010) (see Appendix B) explained in detail the various rating strategies for this tool. At the end of each quality appraisal, the quantitative study can be reported as either strong if there are no weak ratings, moderate if the study has one weak rating, or weak if the study has two or more weak ratings. For the qualitative studies, the Critical Appraisal Skills Programme tool (CASP) (2018) was used (see Appendix C). The CASP (2018) tool consists of 10 questions; the first two questions are for initial screening of the qualitative research studies and determining whether the remaining eight detailed questions are worth pursuing. Since the CASP tool does not provide a means of rating the studies as either strong, moderate, or weak, the grading system proposed by (Downe, Finlayson, Walsh, & Lavender, 2009), using an A-D scoring system construct from the work of Lincoln and Guba (1985) was used in scoring the qualitative studies (see Appendix D).

Table 2. Characteristics of included studies

Author/Year	Sample	Study type/Design	Intervention	Comparison Intervention	Measures of NSSI	Strengths/Limitations
1. Black, Blum, McCormick, & Allen (2013)	Sixty-three women offenders, 14 males in Corrections.	A quantitative study using an uncontrolled program evaluation method	Systems Training for Emotional Predictability and Problem Solving (STEPPS) group treatment	None	The measures used were Borderline Evaluation of Severity Over Time (BEST) (Pfoh et al., 2009), Beck Depression Inventory (BDI) (Beck, 1978), Positive and Negative Affect Schedule (PANAS), (Watson & Clark, 1994), and Client Satisfaction Questionnaire-8 (CSQ-8) (Attkisson & Greenfield, 1999).	**Strengths:** The method used in this study is comprehensive with some bias (No participant selection method, outcome assessors were aware of the status of the participants). **Limitations:** Offenders may have improved because of social support, hope, and therapeutic alliance received during STEPPS and not by the program itself. It was not designed as a research project but a program evaluation hence, data collection was limited and incomplete. Offenders were not randomized, and there

Author/Year	Sample	Study type/Design	Intervention	Comparison Intervention	Measures of NSSI	Strengths/Limitations
						was no control group. Offenders were taking psychotropic medications. Offenders were either incarcerated in medium-security prisons or community corrections, and the high attrition rate was recorded.
2. Blanchette, Flight, Verbrugge, Gobeil, & Taylor (2011)	Ninety-four women incarcerated in five regional corrections facilities in Canada	A quantitative evaluative study	Dialectical Behaviour Therapy	None	Institutional Functioning Scale (Blanchette et al., 2011), Expanded Brief Psychiatric Rating Scale (Lukoff, Liberman, & Nuechterlein, 1986), Symptom Checklist-90-Revised (Derogatis, 1994), Ways of Coping Scale (Folkman & Lazarus, 1988), Profile of Mood States (McNair, Lorr & Droppleman, 1992),	**Strengths:** The method used in this study was comprehensive. The study provided strong and positive support for the implementation of DBT intervention among incarcerated women. **Limitation:** No control group

Author/Year	Sample	Study type/Design	Intervention	Comparison Intervention	Measures of NSSI	Strengths/Limitations
					Self-Control Schedule (Rosenbaum, 1980), Beck Hopelessness Scale (Beck & Steer, 1993), The Paulhus Deception Scale (Paulhus, 1998).	
3. Long, Fulton, Dolley, & Hollin (2011)	Forty-four women who were incarcerated in two medium secure wards with a mean age of 31.7 years.	A quantitative study using a cohort analytical design	A manualized (written and specific guidelines) cognitive behavioural group programme was developed and implemented.	Pre- and post-intervention data	Barratt Impulsiveness Scale (BIS 11) (Patton, Stanford & Barratt, 1995), Pre and post group measures (Long et al., 2011), Dealing with Feelings Questionnaire (DWFQ) (Long et al., 2011), Coping Response Inventory (CRI) (Moos, 1990), The Anxiety, Depression, Suicidality, Hostility, Guilt and Tension subscales of the Expanded	**Strengths:** The findings from this study provide direction for future research into the therapeutic ability or utility of this treatment. **Limitations:** The lack of a control group in the study limits its generalisability. The methodological approach has some flaws in sample selection as the sample was not a representative cross-section of women in medium secure settings.

Author/Year	Sample	Study type/Design	Intervention	Comparison Intervention	Measures of NSSI	Strengths/Limitations
					Brief Psychiatric Rating Scale (BPRS-E) (Lukoff, Nuechterlin and Ventura, 1986), Generalized Self-Efficacy Scale (GSES) (Jerusalem & Schwarzer, 1992), and Overt Aggression Scale (Yudofsky, Silver, Jackson, Endicott & Williams, 1986).	
4. Low, Jones, & Duggan (2001)	Ten females with BPD admitted in a high-security hospital	Quantitative study with a Cohort (one group pre + post (before and after) design	Dialectical Behaviour Therapy	Pre and post data	Measures used are Irritability, Depression and Anxiety Scale (IDAS) (Snaith & Zigmond, 1994), Dissociative Experiences Scale (DES) (Bernstein & Putnam, 1986), Reasons for Living Inventory (RRL) (Linehan et al., 1983), Beck Hopelessness Scale (Beck et al., 1974),	**Strengths:** The study provides preliminary results that suggest the effectiveness of the treatment in institutional settings. **Limitations:** The study is limited by a lack of a control group, the absence of a randomised controlled trial, the small sample size.

Author/Year	Sample	Study type/Design	Intervention	Comparison Intervention	Measures of NSSI	Strengths/Limitations
					Beck Scale for Suicide Ideation (BSI) (Beck et al., 1979), Beck Depression Inventory (Beck & Steer, 1987), and Impulsiveness Scale (Eysenck & Eysenck, 1991).	
5. Nee & Farman (2005)	Thirty women in prison participated with only sixteen completing the study	A quantitative pilot study using an intervention and control groups.	Dialectical Behaviour Therapy	None	Measures used are Borderline Syndrome Index (Conte et al., 1980), Eysenck's Impulsivity (Robinson et al., 1998), locus of control Q (Walters & White, 1989), Emotion Control Q-Rehearsal Scale (Roger, 1997), Rosenberg's Self-Esteem Inventory (Ross & Fabiano, 1985), State-Trait Anger Expression Inventory (Nee & Farman, 2005),	**Strengths:** The study determines the future implementation of DBT in correctional settings. Despite the challenges such as the programme delivery method and the institutional issues encountered, the results are promising. **Limitations:** High attrition rate. The study was a pilot to assess the relevance of DBT in that population

Author/Year	Sample	Study type/Design	Intervention	Comparison Intervention	Measures of NSSI	Strengths/Limitations
					Dissociative Experiences Scale (Nee & Farman, 2005), Survival and Coping Scale of the Reasons for Living Inventory (Linehan, 1993). Prison self-harm records were also used.	
6. Riaz & Agha (2012)	Women inmates in prison setting age 20-50 years. Participants are 9 in total	Quantitative study with a Cohort (one group pre and post (before and after))	Cognitive behavioural therapy	Pre- and post-intervention data	The measures used are: Deliberate Self-harm Inventory (Gratz, 2001) and Brief COPE (Carver, 1997)	**Strengths:** The method used was comprehensive. **Limitations:** Small sample size and study was conducted in only one prison, limiting the robustness of findings. The participants might have misreported deliberate self-harm (DSH) due to the issues of confidentiality. The psychological measure used were not designed for a forensic population. The DSH reported was addressed

Author/Year	Sample	Study type/Design	Intervention	Comparison Intervention	Measures of NSSI	Strengths/Limitations
						in the study, notwithstanding the clinical and personality diagnosis. Hence the reduction in DSH rate may have been as a result of positive changes in the women's clinical symptoms.
7. Sarkar & Beeley (2011)	Women of adult age in medium secure wards	A Quantitative study using a case study design.	A developed algorithm of care is the intervention used for repetitive self-harm	None	Changes in the incidence of self-harm; A Likert-type scale (1-5) developed by the research team was used for evaluation; Locally weighted scatterplot smoothing (LOESS) plotting (Cleveland, 1979).	**Limitations:** Lack of validation of the measure used; Inter-rater reliability was not conducted; the model is an algorithm of immediate and short-term management of self-harm.
8. Walker, Shaw, Hamilton, Turpin, Reid, & Abel (2016).	Prison staff in three prisons for women who self-harmed (14 staff).	A qualitative study using thematic analysis to identify themes	Preventing NSSI can be done through staff and prisoner relationship, self-help strategies, and procedural interventions	None	None	**Strengths:** The qualitative design of this study is the inductive approach. This method enables themes to be drawn from the data. Hence, the themes are

Author/Year	Sample	Study type/Design	Intervention	Comparison Intervention	Measures of NSSI	Strengths/Limitations
						supported by evidence of the study data. **Limitations:** Small sample size which limits the generalisation of results
9. Walker, Shaw, Turpin, Reid, & Abel (2017a).	Females incarcerated in three prisons (aged 28 – 65 years).	A quantitative study using randomised clinical trials design	Brief Psychodynamic interpersonal therapy specifically design for women offenders in a forensic setting was piloted	None	Psychometric measures used are Beck's Scale for Suicidal Ideation (BSSI) (Beck, Kovacs & Weissman, 1979), Becks Depression Inventory (BDI) (Beck, Steer, & Brown, 1996); and Becks Hopelessness Scale (BHS) (Beck, Weissman, Lester, & Trexler, 1974).	**Strengths:** A comprehensive research design is provided and a flow chart detailing the progress of participants in the study. The findings of the research were explicitly presented. **Limitation:** There was a high rate of attrition in the study. The assessment of repeated self-harm was based on the subjective report of the participants. The outcome assessors were not blinded to the randomisation of the

Author/Year	Sample	Study type/Design	Intervention	Comparison Intervention	Measures of NSSI	Strengths/Limitations
						participants or intervention status.
10. Walker, Shaw, Hamilton, Turpin, Reid, & Abel (2017b).	Women who self-harm in three female prisons	A qualitative study using semi-structured interviews.	Intervention approach is the use of good-bye letters after a brief psychodynamic interpersonal therapy (PIT)	None	Post therapy interview of participants	**Strengths:** The study is the first of its kind to evaluate imprisoned women's thoughts using good-bye letters. The findings have implications for future brief therapy with this group of women. **Limitations:** The findings are only from a small sample of imprisoned women who self-harm therefore results should be interpreted with caution.
11. Ward & Bailey (2013)	Both Women in prison who self-harmed and the prison staff were included.	Participatory action research (PAR) using mixed methods triangulating the quantitative data of the	Service User Involvement (SUI) is the preventive approach used for self-harm among this group	None	Questionnaires created by the research team and reviewed by the National Self-harm Expert Reference Group were utilised; interviews from participants.	**Strengths:** Detailed information on the PAR sequence. **Limitations:** No information on the inclusion and exclusion criteria; no research question driving the research.

Author/Year	Sample	Study type/Design	Intervention	Comparison Intervention	Measures of NSSI	Strengths/Limitations
		imprisoned women with the narrative data of prison staff on self-harm.				No assessment tool for study quality.

3.3.3.1 Summary of data quality evaluation

The characteristics of the included papers and grouping by study type are shown in Table 2 above. Among the 11 papers included in this integrative review, one paper was not assessed for quality using the appraisal tools mentioned because it did not meet the eligibility criteria for quality assessment (see Table 3a). Following methods for knowledge synthesis outlined by Whittemore et al., (2014), this article was assessed for its authenticity, informational value, and representation of the primary sources. Of the ten papers assessed for quality (90.91%), six papers (54.55%) received low grading (weak rating); 2 papers (18.18%) received moderate scores; while only 2 papers (18.18%) received high-quality rating. There was 100% agreement between the graduate student and supervisor when scoring the various papers as either high, moderate, or weak after some minor disagreement between the graduate student and supervisor was resolved through discussion.

Articles at this stage were not excluded (see Table 2) based on their quality, but their quality rating was considered when synthesising the results from each study (see a quality assessment of included studies in Table 3A and 3B).

Table 3A: Showing study not assessed for quality using a tool

S/N	Author/Year	Quality assessment tool	Identified Flaws
1.	Ward & Bailey (2013)	None	A PAR study using a mixed-method design but there was no mention of the research questions

Table 3B: Quality assessment of the included studies

S/N	Author/Year	Assessment Tool	Identified Flaws	Scoring
1	Black et al. (2013)	Quality Assessment Tool for Quantitative Studies (QATQS)	• Participants of the study were not selected, but only those that volunteered to participate were included • The study design is an uncontrolled evaluative study • The outcome assessors were aware of the intervention state of the participants	Weak
2	Blanchette et al. (2011)	QATQS	• The outcome assessors of the study were aware of the intervention status of the research participants	Moderate
3	Long et al. (2011).	QATQS	• Selection bias is poorly described. • Less than 60% of the confounders were controlled for • The outcome assessors of the study were aware of the intervention state of the participants • The withdrawals and drop-outs of the study participants were not described	Weak
4	Low et al. (2001)	QATQS	• The outcome assessors of the study were aware of the intervention status of the research participants • Less than 60% of the participants completed the study	Weak
5	Nee & Farman (2005)	QATQS	• The outcome assessors of the study were aware of the intervention status of the research participants • Just over 60% of participants completed the study	Weak
6	Riaz & Agha (2012)	QATQS	• The outcome assessors of the study were aware of the intervention status of the research participants	Moderate

S/N	Author/Year	Assessment Tool	Identified Flaws	Scoring
7	Sarkar & Beeley (2011)	QATQS	• The study design was not mentioned • The control of confounders was not described in the study • The outcome assessor is aware of the exposure status of the research participants • The data collection tool is not shown to be valid or reliable	Weak
8	Walker et al. (2017a)	QATQS	• Control of the confounders was not explained in the study • Blinding is poorly described • The follow-up rate of the participants completing the study is less than 60%	Weak
9	Walker et al. (2016)	Critical Appraisal Skills Programme (CASP) tool	All the required areas are satisfactory	The score is an A (High quality)
10	Walker et al. (2017b)	CASP	All required fields are satisfactory	The score is an A (High quality)

3.3.4 Data Analysis

The phase of data analysis for an integrative review comprises of the exploration and extraction of information from research articles by categorising, ordering, and summarising data (Broome, 2000; Whittemore & Knafl, 2005). To ensure the validity of this stage, Whittemore and Knafl (2005) proposed that the process of conducting data analysis for an integrative review be identified first. Efforts were made to ensure that assumptions are made explicit when discussing the findings and inferences and relevant interpretation rules were outlined when concluding. Comprehensive information on how the study was carried out is given. During the data analysis process, the following steps were observed; data reduction, data display, comparison of data, and drawing conclusions and verification (Whittemore &

Knafl, 2005; Whittemore et al., 2014). The data reduction step of this integrative review of literature involves categorisation of the various papers reviewed using a data display table, as shown in Table 2.

For the data comparison stage, which involves the identification of patterns, themes, and relationships from the primary sources through a repetitive examination of the articles in the data display, a constant comparison method (Whittemore & Knafl, 2005) was used in coding and comparing data derive from the papers. Here, a tabular spreadsheet created from Microsoft Excel 2016 (see Table 4) was used to display data further to ensure appropriate data extraction and coding. The title fields entered were as follows:

- Author/year of publication
- Study design/study type
- Setting/Sample/Number of participants
- Intervention/Comparison intervention
- Measures of NSSI
- Review results
- Strength/Limitation of the study
- Evidence-based Interventions

This approach of data visualisation using data display and comparison provides a clear understanding of the primary studies included in this study (Whittemore & Knafl, 2005). A critical examination of data using the constant comparison method enables the identification of relationships between the phenomena, whether as similar or differing.

Drawing and verifying conclusions which are the final step in the analysis process was concluded with summary and verification of data extracted from the research papers to ensure accuracy and authenticity of the integrative review (Whittemore & Knafl, 2005). At the end of this phase, new knowledge and evidence synthesised from the original research

papers regarding the effectiveness of NSSI interventions among incarcerated women in correctional facilities and secure settings were made and presented (see Chapter 4 for results).

3.3.5 Presentation of Findings

The presentation of findings is the final stage in the process of an integrative review, which can be in a tabular or diagrammatic pattern. The PRISMA flow chart was used to present the search strategy of this integrative review. The results of the findings of this review were presented using the format of primary research suggested by Copper (1998), which includes, an introduction, method, results, and discussion sessions. Threats to validity at this stage can result from the researcher omitting relevant details and information and secondly if details of the study can not be adequately reproduced (Russell, 2005). To strengthen the presentation of findings, impeccable attention was applied, and reproduction of the findings of the entire review was explicit so that it can be followed by another reviewer (Russell, 2005).

3.4 Ethical Consideration

The Research Ethics Review Board or Committee (REB) of the University of Saskatchewan was approached for an exemption letter for ethical approval since this; integrative literature review satisfies the exemption criteria for ethics approval as delineated in the Tri-Council Policy Statement article 2:2 (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, & Social Sciences and Humanities Research Council of Canada, 2010). The methodological approach involves published articles retrieved from the search strategy, which can be accessed online by the public, and articles from the library as the primary source of data. Therefore, an exemption letter was obtained from the REB before the review was commenced (See appendix F).

3.5 Findings

The findings of this integrative review will provide information on the current interventions used in correctional and secure settings to treat, manage, and prevent NSSI among women. Gaps discovered from the existing literature will help in providing direction for future research in this field as well as an evidence-based practice within the correctional and secure institutions. More details of the findings of this study are presented in chapter 4.

Chapter 4 Findings

Eleven papers met the inclusion criteria of this integrative review and the findings from these papers will seek to address the research questions of this integrative review. This chapter will include the presentation of the general findings and the exploration of the emerging themes.

4.1 Sample

The 11 papers that met the inclusion criteria are made up of two qualitative studies, eight quantitative studies, and one mixed-method study. Countries, where the research originated, included Canada (n=1), the United States (n=1), the United Kingdom (n=8), and Pakistan (n=1); the dates of publication ranged from 2001 to 2019.

At the end of the data extraction process, six interventions emerged as promising for incarcerated women that engage in non-suicidal self-injury and included the following: (1) Dialectical Behavioural Therapy (DBT); (2) Group Cognitive Behavioural Therapy (Group CBT); (3) System Training for Emotional Predictability and Problem Solving (STEPPS); (4) staff training and support program; (5) positive and trustworthy prisoner-staff relationships; and (6) the use of good-bye letters after therapy completion. See Table 4 for a summary of the findings.

4.2 Interventions

4.2.1 Dialectical Behavioural Therapy (DBT)

DBT as an intervention for self-injury (NSSI) among incarcerated women is noted in three of the included papers. The results of these papers suggest preliminary support for DBT as a successful and promising intervention for criminal justice-involved women who engage in non-suicidal self-injury, whether in prisons, correctional facilities or secure hospitals (Blanchette et al. 2013; Low et al. 2001; Nee & Farman, 2005). The application of DBT among the incarcerated women showed a reduction in NSSI episodes (Blanchette et al. 2013;

Low et al. 2001; Nee & Farman, 2001). Participants demonstrated improvement in the level of survival and coping skills (Blanchette et al., 2011; Low et al., 2001) as well as institutional functioning (Blanchette et al., 2011). Notable is the high attrition rate, or the low number of participants who completed the studies, resulting in small final sample sizes, for example, 10 (Low et al., 2001), 14 (Nee & Farman, 2005), and 59 (Blanchette et al., 2011). As no control groups were used in the studies, it can be concluded that the DBT form of intervention is only promising in its efficacy in treating incarcerated women engaging in NSSI.

4.2.2 Cognitive Behavioural Group Treatment (Group CBT)

Group CBT is a mode of intervention derived from DBT. In the study by Long et al., (2011), the researchers explored the effectiveness of Group CBT for women with personality disorder in a medium secure setting. Following treatment, the researchers recorded positive changes in the psychometric scores, which were highly significant for the women who completed the treatment (n=29) (Long et al., 2011). Women in the treatment group showed a significant reduction in self-injurious behaviours, suicide attempts and physical assaults against others (Long et al., 2011). The participants showed improved use of the adaptive coping skills component of the treatment as seen in their measures of suicidality, anxiety, coping skills, ability to engage in activities that reduced negative mood and activities that recognised mood change by participating in the cognitive behavioural group treatment (Long et al., 2011). The lack of a control group and the small sample size, as well as only one follow-up at three months, reduced the robustness of the findings of the research (Long et al., 2011). Therefore, among women confined in secure settings with a personality disorder that engaged in non-suicidal self-injury, Group CBT is suggested as a positive treatment that may benefit this group of women.

In Riaz and Agha's (2012) study, Group CBT is also shown to be a promising intervention targeting deliberate self-harm (DSH) among incarcerated women. Although

statistically, there was no significant impact on these women, the intervention group felt relatively better after the intervention with a record of reduction in the frequency of DSH during therapy and no record of an episode after intervention assessment. The participants showed increased use of adaptive coping methods such as their involvement in religious activities. The researchers also revealed that emotional suffering by some of the imprisoned women was expressed more through avoidance behaviours such as heavy smoking, drinking tea excessively, self-condemnation, TV watching, and pouring out their negative emotions. Emotion-focused methods of coping were used by the women more than active coping, planning, or instrumental support (i.e. problem-focused technique). One of the factors reinforcing NSSI is interpersonal problems. The findings of Riaz and Agha (2012) provide preliminary support for CBT being efficacious in managing NSSI among imprisoned women, but the results of the study should be applied with caution.

4.2.3 System Training for Emotional Predictability and Problem Solving (STEPPS)

STEPPS is a brief intervention strategy used in targeting imprisoned persons with BPD who engaged in NSSI. In the study of Black, et al., (2013), the STEPPS treatment program, is a manual-based (written key components of the the therapy consisting of an agenda or lesson plan and homework assignments) cognitive behavioural elements and skill training for individuals with BPD, was used as a treatment option in a study conducted in Iowa prisons. The participants of the study consisted of a total of 77 offenders (14 men and 63 women) (Black et al., 2013). The findings of the study show that STEPPS produces a clinically significant reduction in the number of NSSI and suicidal behaviours as well as disciplinary infractions in prison (Black et al., 2013). Notable is that the participants were enrolled from the prison (n=67) and community corrections-based group (n=10); however due to high attrition in the study, only 41 participants completed the study (Black et al., 2013).

4.2.4 Staff Training and Support Programs

The training of staff that deal with imprisoned women who engage in self-injury, and support programs for staff, although not a therapy or intervention for non-suicidal self-injury per se, is invariably significant in the outcome of NSSI interventions.

Walker et al., (2016), found experiential learning or observing peers (informal learning), as opposed to formal training, valued most in equipping staff in supporting imprisoned women who engaged in NSSI. According to the authors, staff training in NSSI and personality disorder is reported by most of the staff as efficient in advancing their knowledge of NSSI and support for imprisoned women who engaged in NSSI (Walker et al., 2016). Hence, specific, effective, on-going training of staff dealing with imprisoned women that self-injure is proposed by these authors as a means of overcoming the challenges encountered by staff (Walker et al. 2016).

In a research study by Ward and Bailey (2013), the researchers noted that from 410 prison staff, the majority (n = 338, 82%) had no training on mental health awareness and 118 (29%) were not trained in an approach entitled Assessment Care in Custody and Teamwork (ACCT). The lack of training can limit the extent to which the ACCT procedure can be applied and benefit the identification of women at risk of NSSI and their management (Ward & Bailey, 2013). It was also noted that 46% of staff were not knowledgeable about NSSI, hence, having more staff training and support programs were advocated for by both staff and women in the study (Ward & Bailey, 2013). Therefore, for the interventions for NSSI among incarcerated women to be effective, the staff responsible for executing these treatments must be fully equipped or resourced.

4.2.5 Positive and trustworthy prisoner-staff relationship

Having a supportive and professional relationship with incarcerated women that self-harm was seen as a pillar or foundation (significant to reducing the ability to self-harm by

enabling the prison staff to identify the women's "risk signatures") through which more targeted interventions could strive in the study by Walker et al. (2016, p. 177). This relationship can be based on being honest and consistent and knowing the women more individually (Walker et al., 2016). Listening to the incarcerated women and making them feel valued and supported, was seen as the most beneficial form of intervening, as suggested by Walker and colleagues (2016). However, given that only staff (n=14) across three prisons were included in the study, it limits the generalization of the findings of the research (Walker et al., 2016).

4.2.6 The use of good-bye letters after therapy completion

Walker, Shaw, Turpin, Roberts, Reid, and Abel (2017b) in their research found that the use of good-bye letters at the end of therapy connects the therapist with the service user (imprisoned women). Here the letters stand to improve the experiences of these women by showing "written evidence of being heard" as opposed to their experience of rejection and neglect, which was a significant experience for them (Walker et al., 2017b, p. 103). It also provides a new perspective and a level of containment for the women regarding their self-harming behaviour (Walker et al., 2017b).

It was also discovered that the letters acted as a tool that increased the women's potential or ability to condone strong feelings which could have led them to self-harm (i.e. connecting to self through understanding and awareness) (Walker et al., 2017b). Re-reading the good-bye letters provided a way of being in touch with reality, thoughts and feelings, continuing awareness and recognition, which also served as a reminder of past, and new skills learned and an alternative to self-harm by the women (Walker et al., 2017b). Connecting to other people through sharing of the good-bye letters showed a level of mindful reflection of the impact of self-harm to them (imprisoned women) and others, and it

was also a form of self-compassion, attending rather than avoidance said some of the participants of the study (Walker et al., 2017b).

The researchers noted that the experience of receiving the good-bye letter varied among the women. The results of this study were based on the positive impact of the letter on the women, but by contrast, the minority (n = 2) that reported a negative concern stated that receiving the letters and reflecting on them reconnected them to what was done during therapy and the painful experiences they sought to wipe out of their memory and forget (Walker et al., 2017b). For this group of women, not reading or refusing the good-bye letters was a coping mechanism to protect themselves (Walker et al., 2017b). Notably, the study presents the experiences of only a small sample of imprisoned women that self-harmed (n=13). However, the study is the first of its kind to explore the views of incarcerated women who underwent brief therapy and used good-bye letters (Walker et al., 2017b).

4.3 Other types of interventions identified

In addition to the emerging themes identified previously, there are other types of interventions noted during the data extraction process: Algorithm of care, and Psychodynamic Interpersonal Therapy (PIT).

4.3.1 Algorithm of care: An algorithmic model of risk management based on theory, informed by a practised and stepped-care approach was developed by Sarkar and Beeley (2011). The model helps to map the severity level of self-harm risk to the level of staff response, and resources used to manage the risk (Sarkar & Beeley, 2011). This process of mapping the risk of self-harm and needs to the response level helps in directing the appropriate allocation of workforce and resources available with the highest levels of NSSI encountered with the institutional highest response (Sarkar & Beeley, 2011). According to the researchers, this method limits the time spent by more experienced (senior) professionals and the managers in clinical risk management to those unlikely to be safely managed by

junior staff (Sarkar & Beeley, 2011) The researchers reported that the recorded reduction in NSSI incidence over 41 months might be interpreted as saying that even though this approach is focussed on controlling the allocation of staff to NSSI incidents, it also corresponds with an overall clinical strategy which has caused NSSI rates to reduce on the wards (Sakar & Beeley, 2011). The algorithm model of care was found to be effective in reducing the rate of NSSI from one incident per week to 0.25 incidents (Sarkar & Beeley, 2011). The external validity of the model is compromised as there is a lack of validation of the measure used in assessing the model fidelity and the lack of inter-rater reliability assessment (Sarkar & Beeley, 2011). It is important to note that this model is for immediate and short-term responses to the incidence of NSSI and not recommended for long-term treatment or use (Sarkar & Beeley, 2011).

4.3.2 Psychodynamic Interpersonal Therapy (PIT): In Walker and colleagues' research (2017a) on Women Offenders Self Harm Intervention Pilot II (WORSHIP II) using PIT, it was revealed that 14 out of 31 women who completed PIT, and 18 out of 45 active control (AC) completers self-reported not involving in self-harming behaviours during therapy (Walker et al., 2017a). A reduction in NSSI was noted more among the PIT group participants compared to the active control group (Walker et al., 2017a). So, from the findings, it shows that imprisoned women in the AC group self-reported more incidents of NSSI and repeated NSSI during the intervention phase (Walker et al., 2017a). The scores on the Beck scales used demonstrated an improvement in the baseline data from both groups, even though there were no statistically significant results recorded (Walker et al., 2017a). The findings of this research provide a useful and positive result that suggests that this method of management (WORSHIP II) using PIT for incarcerated women is a possibly effective therapeutic intervention based on the improvement of the pre-assessment data (Walker et al., 2017a). The researchers suggested caution when interpreting the results, as

high rate of attrition were recorded in the study and the fact that the pilot study was not designed to assess the effectiveness of the intervention (Walker et al., 2017a).

4.4 Summary of findings

From the 11 papers included in this integrative review, most of the interventions for NSSI behaviour reported were useful within correctional and secure settings. Only two of the identified interventions were designed specifically for incarcerated women. The findings also reveal an emphasis on the effectiveness of some interventions among women who engage in NSSI with a diagnosis of personality disorder, specifically for a diagnosis of borderline personality disorder. In as much as the interventions noted were promising, the sample sizes of the studies reviewed were small, therefore limiting their generalizability.

Table: 4 Summary of findings

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
Black et al. (2013)	A quantitative study using an uncontrolled program evaluation method (Cohort)	63 women and 14 men offenders in corrections. 67 participants were from prisons and 10 from a community corrections-based group.	Systems Training for Emotional Predictability and Problem Solving (STEPPS) group treatment.	Borderline Evaluation of Severity Over Time (BEST) (Pfoh et al., 2009), Beck Depression Inventory (BDI) (Beck, 1978), Positive and Negative Affect Schedule (PANAS) (Watson & Clark, 1994), and Client Satisfaction Questionnaire-8 (CSQ-8) (Attkisson & Greenfield, 1999).	The findings of this study show that the benefit of the STEPPS program may help in correcting an individual's behaviour and improving mood. **Conclusion:** STEPPS was found to be significant in treating self-harm among incarcerated women. **Limitations:** Improvement might have been due to social support, hope, and therapeutic alliance, the study was not a research study per se, but a program evaluation leading to limited and incomplete data collection. Offenders were not randomized,	Data showed a significant reduction in the incidences of self-harm and disciplinary infractions in the prison setting.

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
					and there was no control group. Offenders were taking psychotropic medications. The study recorded high attrition	
Blanchette et al. (2011)	A quantitative study using a Cohort design.	94 women incarcerated in five regional corrections facilities	Dialectical Behaviour Therapy (DBT)	Institutional Functioning Scale (Blanchette et al., 2011), Expanded Brief Psychiatric Rating Scale (Lukoff, Liberman, & Nuechterlein, 1986), Symptom Checklist-90-Revised (Derogatis, 1994), Ways of Coping Scale (Folkman & Lazarus, 1988), Profile of Mood States (McNair, Lorr & Droppleman, 1992), Self-Control Schedule (Rosenbaum, 1980), Beck Hopelessness Scale (Beck & Steer, 1993), The Paulhus	The findings of the study demonstrated that incarcerated women who participated in the DBT showed improvements of moderate to high magnitude on different psychological measures. **Conclusion:** The study provides strong and positive support for the implementation of DBT intervention among incarcerated women.	The difference in self-harm incidents involvement was significantly different between Time 1 and Time 2 of the DBT treatment.

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
				Deception Scale (Paulhus, 1998).	**Limitation:** No control group and incomplete data at time 3 of the study.	
Long et al. (2011)	A quantitative study using pre-test – post-test design	Secure settings 44 participants.	Group CBT	Barratt Impulsiveness Scale (BIS 11) (Patton, Stanford & Barratt, 1995), Dealing with Feeling Questionnaire (DWFQ), Coping Responses Inventory (CRI) (Moos, 1990), BPRS-E (Lukoff, Nuechterlin and Ventura, 1986), Generalised Self-Efficacy Scale (GSES) (Jerusalem & Schwarzer, 1992). The Overt Aggression Scale (Yudofsky, Silver, Jackson, Endicott & Williams, 1986).	29 females completed the treatment while 15 were non-completers. The treatment was compared at post-treatment between the two groups. **Conclusion:** Females that completed the treatment were less likely than non-completers to engage in SIB, suicide attempt, and physical assault (Long et al., 2011). **Limitations:** Lack of a control group and sample, not a representation of women in secure	The group CBT was more effective in reducing self-injurious behaviour among the treatment completers than non-completers. CBT completers: M = 6.41; SD = 2.92; N = 29 Non-completers: M = 12.38; SD = 5.35; N = 15

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
					settings limits the results.	
Low et al. (2001)	A quantitative study using a cohort design	High secure hospital. 10 female participants	DBT	Irritability, Depression, and Anxiety Scale (IDAS) (Snaith & Zigmond, 1994), Dissociative Experiences Scale (DES) (Bernstein & Putnam, 1986), Reasons for Living Inventory (RRL) (Linehan, Goodstein, Neilson, & Chiles, 1983), Beck Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974), Beck Scale for Suicide Ideation (BSI) (Beck, Kovacs, & Weissman, 1979), Beck Depression Inventory (Beck & Steer, 1987), and Impulsiveness Scale (Eysenck & Eysenck, 1991).	The findings of this study with ten female forensic hospital patients receiving DBT, showed a reduction in the rates of self-harm as well as improvement in several psychological variables. **Conclusion**: The findings of this study are preliminary, although the results suggest that DBT is a promising treatment for self-harm in institutional settings. **Limitations:** Lack of a control group as well as the treatment condition the participants may have received. Small sample size. Three	Positive thoughts about living significantly increased at 18 months (M = 4.3, SD = 1.4) from a pre-treatment data of M = 2.1. SD = 1.3. Overall, the DBT therapy was significant in the reduction of DSH maintained from 6 months up (Low et al., 2001).

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
					patients were reported to have dropped out of treatment due to limited cognitive abilities and security concerns.	
Nee & Farman (2005)	A quantitative study using cohort design.	Prison 16 participants and a waiting-list control group of 8 participants	DBT	Borderline Syndrome Index (Conte, Plutchik, Karasu, & Jerrett, 1980), Eysenck's Impulsivity (Robinson, Porporino, & Beal, 1998), locus of control Q (Walters & White, 1989), Emotion Control Q-Rehearsal Scale (Roger, 1997), Rosenberg's Self-Esteem Inventory (Ross & Fabiano, 1985), State-Trait Anger Expression Inventory (Nee & Farman, 2005), Dissociative Experiences Scale (Nee & Farman, 2005), Survival and Coping Scale of the Reasons for Living Inventory	The findings of this study are from the data of 14 participants who completed the study. Only 5 control participants completed all measures. **Conclusions:** Despite the setbacks in the pilot study, DBT was found to a promising treatment for imprisoned women with Personality Disorder. **Limitations:** Problems with program delivery which resulted in high attrition of the delivery team, and	Psychometric scores showed positive changes with statistically significant improvements in self-esteem, impulsivity, and dissociation. Behavioural measures also showed a decrease in self-harm. There were no significant changes recorded in the control group, although some similar improvements were seen in the psychometric and self-harm results.

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
				(Linehan, 1993). Prison self-harm records were also used.	broader institutional problems	
Riaz & Agha (2012).	A quantitative study using a cohort design	Prison 9 participants	CBT	Deliberate Self-harm Inventory (Gratz, 2001) and Brief COPE (Carver, 1997).	Findings from this research show that CBT is a positive intervention in treating DSH among imprisoned women. **Conclusion:** Despite the preliminary support of CBT being successful in treating DSH among imprisoned women, caution should be applied when interpreting the results based on the limitations of the study. **Limitation:** Small sample size, only one prison setting was used, and the measure used was not designed	The intervention was not statistically significant in this group. However, CBT was found to be positive in treating DSH.

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
					for the forensic population.	
Sarkar & Beeley (2011)	A quantitative study using a case study design	Medium secure setting. 102 out of 546 incidences of self-harm were examined	An algorithmic model of care	Likert-type scale (1-5) – use to rate the severity of self-harm; Graphical summaries were used to assess the fidelity of the model; Locally weighted scatterplot smoothing (LOESS)- was used to examined trends in the number of incidents of self-harming over time (Cleverland, 1979).	The five-level algorithm designed was theoretical and practised-based. 102 incidences were rated and examine over 41 months. The incident of self-harm reduced from 1 per week to .25 per week among the imprisoned women (Sarkar & Beeley, 2011). **Conclusion:** The model was effective in reducing the incidence of self-harm in the settings. **Limitations:** The findings of the study are limited by a lack of validation of the measure used and inter-rater reliability.	The algorithm model of care based on theory clinically informed and stepped care strategy is developed and tested to be effective in reducing self-harm frequency. Staff assessment revealed that the model fidelity is adequate (Sarkar & Beeley, 2011).

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
Walker et al. (2016).	A qualitative study using the inductive approach.	Prison 14 participants (staff)	Therapy for self-harm: Psychodynamic Interpersonal Therapy (PIT) Prison staff strategies of supporting self-harm among women are: Developing a relationship, self-help strategies, procedural interventions.	Thematic analysis (Braun & Clarke, 2006), was used to extract data from the interview transcription.	Three themes emerged from this systematic thematic analysis as "developing a relationship"- an honest and consistence relationship with the imprisoned women who self-harm; "self-help strategies" which included harm-minimisation techniques (snapping rubber band), distraction techniques (exercise and crafts), listening, making them feel valued and supported; "procedural intervention" through ACCT, staff training and support. **Conclusion:** Specific, effective, and on-going staff training, staff support, and	Staff recognised a positive and trustworthy prisoner-staff relationship as key in reducing self-harm (Walker et al., 2016). Staff training and support, as implied by the staff, will improve their response and understanding of self-harm and their support to women who self-harm (Walker et al., 2016).

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
					positive prisoner-staff relationship is crucial in the effective management of self-harm. **Limitations:** The sample is not a representative of the staff population, therefore, cannot be generalised to other women's prison.	
Walker et al. (2017a).	A Randomised Clinical Trial (RCT)	Prison Participants: 31 PIT group, 45 Active control (AC) group.	WORSHIP II: Self-harm intervention was Psychodynamic Interpersonal Therapy (PIT).	Four measures were used to assess the outcome of the intervention: Beck's Scale for Suicidal Ideation (BSSI) (Beck et al., 1979), Becks Depression Inventory (BDI) (Beck, Steer, & Brown, 1996), Zanarini Rating Scale for Borderline Personality Disorder (ZAN-BPD) (Zanarini et al., 2003), and Becks Hopelessness Scale	14 PIT group participants did not engage in self-harm during therapy while 4 reported self-harm while on treatment (Walker et al., 2017). For the AC group, 18 reported no self-harm, while 16 said they self-harm during the intervention (Walker et al., 2017). The results of the assessment using the Becks Scales was not	Psychodynamic Interpersonal Therapy was not statistically significant in this pilot study.

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
				(BHS) (Beck et al., 1974).	statistically significant but show an improvement from baseline assessment in both groups. **Conclusion:** WORSHIP II using PIT is a promising therapeutic intervention for self-harm among incarcerated women. **Limitations:** The study was a pilot study, A high rate of attrition, subjective self-report, selection bias (researchers not blinded to randomisation or intervention status of women) limits the robustness of the findings.	

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
Walker, Shaw, Turpin, Roberts, et al. (2017b).	A qualitative paper	Prison 13 participants	The use of Good-Bye letters following therapy	Thematic analysis (Braun & Clarke, 2006) was used to extract information.	The following themes emerged from the thematic analysis: Connecting with the therapist through receiving the letters, connecting to self through understanding and awareness, and connecting to others by sharing the good-bye letter. **Conclusion:** Overall, the good-bye letters prove to be useful in sustaining positive benefits gained from therapy long after the treatment has ended. **Limitation:** The experiences of only a small sample of women who self-harmed (13).	The use of good-bye letters after completing a therapeutic intervention is crucial in reinforcing what was learned during therapy.
Ward & Bailey (2013).	A participatory action	Prison	Care pathways for self-harm management	No measures were mentioned.	Three themes emerged from the analysis of both data (quantitative	There was no report if the findings were

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
	research (PAR) using a mixed-method design.	Participants for quantitative data: Imprisoned women (n = 50), and staff (n = 68). Narrative account: women = 15, staff = 13.	developed through PAR		and narrative account): 1. Current procedures for self-harm management 2. Having an understanding of NSSI 3. Opportunity for service development **Conclusion:** The procedures found significant in NSSI management are the use of ACCT, engaging in meaningful activities, and having a positive relationship between staff and prisoner. Understanding self-harm by providing staff training and support programs will improve staff management of self-	statistically significant in this study.

Author/ Year of publication	Study Design/ Type	Sample/ Settings	Intervention	Measures of NSSI (Self-harm)	Results	Evidenced-based and statistically significant Interventions
					harm. Provision of services such as workbooks, respite/chill-out areas, self-help group, safety plans, counselling, peer group, and camouflage info were mentioned (Ward & Bailey, 2013). **Limitations:** The findings are limited by the sample size, recruitment procedure.	

Chapter 5 Discussion

The identified interventions from this integrative review will be discussed in relation to the previous research on the treatment of NSSI. Based on the synthesis of information from this review, knowledge gaps and recommendations for practice and further research will be suggested, and the limitations of this review will be discussed.

5.1 Emerging Themes

5.1.1 Dialectical Behaviour Therapy (DBT): DBT is a comprehensive treatment developed by Linehan (1993) for individuals with borderline personality disorder (BPD), specifically those who are suicidal and have a high rate of NSSI (Lynch & Cozza, 2010). Of all the treatments for NSSI, DBT is the only behavioural treatment that has garnered the most empirical evidence for its effectiveness in treating NSSI (Linehan, Armstrong, Suarez, Allmon, & Heard, 1991; Linehan, 1993; Linehan, Tutek, Heard, & Armstrong, 1994; Lynch & Cozza, 2010). According to Dixon-Gordon and colleagues (2012), the treatment of NSSI behaviour is well established within the context of BPD.

DBT is based on the biosocial theory of personality and behaviour functioning that presumes that BPD is primarily a disorder with emotion regulation dysfunction resulting from interaction and transaction between biological irregularities and specific dysfunctional environments (Linehan, 1993). Therefore, individuals with BPD are emotionally vulnerable and lack emotion modulation skills (Linehan, 1993). Precisely, DBT derives its principles from a combination of behavioural science, dialectical practice, and Zen practice to ensure that individuals with BPD build a life worth living, emphasising the balance of acceptance and change (Lynch & Cozza, 2010). DBT targets the four problem areas associated with BPD through behavioural skills training in the DBT program: interpersonal skills, emotion regulation skills, distress regulation skills, and core DBT mindfulness (Linehan, 1993; Lynch & Cozza, 2010). The emotion regulation skills training component of the DBT treatment is

designed to increase more positive and adaptive behaviours while decreasing maladaptive behaviours and thinking patterns (Linehan, 1993).

The current review reiterates this view that females with BPD show improvement in positive living and reduction in their non-suicidal self-injury behaviour (Blanchette et al., 2011; Low et al., 2001; Nee & Farman, 2005). Consistently, research has shown that DBT, as opposed to treatment as usual (TAU) (regular routine treatment that is used), is more effective in reducing NSSI (Koons et al., 2001; Linehan et al., 1991, 1993, 1994; & Linehan et al., 2006). Although DBT was initially developed with community samples as a community-based treatment, the theoretical framework is also relevant to the incarcerated population given the high incidence of BPD among offenders and particularly female offenders (Corabian et al., 2013; Eccleston & Sorbello, 2002). In a study by McCann, Ball, and Ivanoff (2000), DBT is presented as an appropriate intervention for NSSI within the incarcerated or forensic population. This is based on the fact that DBT is a structured cognitive-behavioural method that has shown to reduce aggressive and life-threatening behaviour effectively (McCann et al., 2000). Therefore, DBT is an intervention with promising success among incarcerated women who engage in NSSI. Dialectical Behavioural Therapy, as a treatment intervention, is not specific to females, but due to evidence of its effectiveness in individuals diagnosed with BPD that engage in NSSI and the fact that female offenders have a high prevalence of BPD, DBT features significantly in the management of this population.

Given the need for a briefer form of intervention, Emotion Regulation Group Therapy (ERGT) was developed. ERGT is developed based on the principles of DBT (Linehan, 1993) and Acceptance Commitment Therapy (ACT) (Hayes, Strosahl, & Wilson, 1999). ERGT is a 14-week, emotion-focused behavioural group intervention developed for individuals with BPD, and co-occurring NSSI (Gratz & Gunderson, 2006), which is less intensive compare to

DBT. ERGT was piloted in a study with female outpatients diagnosed with BPD who engaged in NSSI and was found significant in reducing NSSI as well as BPD symptoms compared to TAU (Gratz & Gunderson, 2006). The researchers reported that to date, no data has demonstrated the efficiency of ERGT treatment with the offender population yet (Gratz & Gunderson, 2006). In a more recent Randomised Controlled Trial (RCT) and uncontrolled 9-month follow-up research by Gratz, Tull, and Levy (2014), implementing ERGT among women with BPD who engaged in NSSI; ERGT was shown to be successful in reducing the episodes of NSSI as well as other forms of self-destructive behaviours. ERGT has also been reported to be feasible and transportable as it was significant in the improvement of NSSI frequency and versatility, emotion dysregulation, self-destructive behaviours as well as depression and stress symptoms (Sahlin et al., 2017).

5.1.2 Cognitive behavioural therapy (CBT): CBT examines the connections between thoughts, emotion, and behaviour. CBT aims to teach patients to be their therapist, and this is achieved by helping them to understand the current state of thinking and behaviour and empowering them with tools to change their maladaptive cognitive and behavioural patterns (Fenn & Byrne, 2013). The focus of CBT intervention is problem-oriented emphasising the problem at hand (Fenn & Byrne, 2013). For NSSI treatment, CBT aims to teach alternative and adaptive coping mechanisms to deal with emotional distress in the individual and promote ways to be more hopeful and self-efficacious (Newman, 2010). Currently, there is a dearth of empirical literature supporting the implementation of CBT among incarcerated women who engage in NSSI, although there is empirical evidence of its effectiveness in treating psychiatric disorders.

In the literature review by Wakai, Sampl, Hilton, and Ligon (2014), a combined form of intervention involving Motivational Interviewing (MI) and Cognitive Behavioural Therapy (CBT) were reviewed, recognizing that DBT is challenging to implement within

prison settings with regards to resources available in an institution such as staff training, staff turnover, and the logistics of providing the components of DBT. MI and CBT are alternative therapeutic strategies that were combined to treat NSSI among imprisoned women besides DBT (Wakai et al., 2014). The process of combining MI and CBT in a prison environment allowed the therapists to tailor the treatment individually to the women who engaged in NSSI (Wakai et al., 2014). The critical element of this method is helping the women discover additional supports available to them through therapy, support groups, recreational activities, and spiritual resources, among others (Wakai et al., 2014).

The MI therapy can be used to help the women create motivation to change their NSSI behaviour, and the MI process emerges from having a collaborative, accepting therapeutic relationship between the therapist and incarcerated women (Wakai et al., 2014). During this process, the therapist works with the individual through related ambivalence, encouraging the writing of a self-encouraging letter, which is based on breaking the attitude of SIB (Wakai et al., 2014). Using the MI strategy of self-efficacy, the therapist reminds the women individually about positive changes they have made towards controlling their NSSI behaviour (Wakai et al., 2014). The written motivational exercise, such as the encouraging letter, is found helpful by most of the women when on a course of treatment for SIB (Wakai et al., 2014). At the end of the exercise, reading of the letter by the women (hearing herself state her motivation) has the potential to further the development of readiness to change SIB (Prochaska & Norcross, 2001). The CBT aspect of the treatment involves self-monitoring, which is a crucial component of the therapy (Wakai et al., 2014). The combination of CBT with MI is to address the deficit of coping skills that are associated with NSSI (Wakai et al., 2014). Another form of CBT used in the treatment of NSSI is the Manual Assisted Cognitive Behavioural Therapy (MACT) (Evans, 2000). MACT incorporates the technique of problem-solving, emotion regulation, and cognitive restructuring in the management of NSSI (Evans,

2000). In a RCT study for female outpatients, although MACT was not significantly different from TAU, fewer episodes of NSSI were found in the MACT group (Tryer et al., 2003). Although the MACT approach leads to a reduction in NSSI, there is no data showing its implementation among incarcerated women that engaged in NSSI, although it was effective in reducing the episodes of NSSI. In previous research implementing the use of CBT among young male offenders, CBT was found to reduce the rate of self-harm compared to treatment as usual (Mitchell et al., 2011; Rohde, Jorgensen, Seeley, & Mace, 2004). Mitchell et al. (2011) recorded significant changes in the coping ability for anxiety and depression except for self-harm coping abilities. In the study by Rohde et al. (2004), the intervention was aimed at improving the participants' skills such as social skills, relaxation, cognitive restructuring, communication, and problem-solving.

The current integrative review reflects similar findings among imprisoned women where the participants demonstrated improvement in their adaptive skills, although others resorted to using avoidance behaviours such as self-distraction or cigarette use instead of self-harming (Riaz & Agha, 2012). The same holds for women diagnosed with a personality disorder that show improvement in their adaptive skills (Long et al., 2011). Since the focus of CBT is problem-oriented emphasising the problem at hand (Fenn & Byrne, 2013), participants in the research by Riaz and Agha (2012) used more of emotion-focused strategies compared to problem-oriented methods. This can be attributed to the fact that the women were seeking other methods of coping such as the tendency to avoid their emotions rather than accept them (Haines & William, 2003) and the restrictive prison environment, which might have limited the coping strategies available to these women (Kilty, 2006). Here, CBT is seen as an intervention with a promising result among imprisoned women and women diagnosed with personality disorder confined in a secure hospital.

5.1.3 System Training for Emotional Predictability and Problem Solving

(STEPPS): STEPPS is a manual-based group therapy designed in the mid-1990s for individuals with BPD (Black et al., 2013). In the prison population, BPD has been established as having a high occurrence among offenders. In the female incarcerated population, the rate of BPD is as high as 55% (Black et al., 2007). The STEPPS program is designed to supplement other treatments an individual is already receiving, such as medication, individual treatment, and case management (Black, Blum, Pfohl, & St. John, 2004). STEPPS is a group treatment approach that combines both a cognitive-behavioural element and skill training without involving individual therapy (Black et al., 2013). The major component of this therapy is psychoeducation about BPD, skill training on emotion management, and behaviour management skill training (Black et al., 2013). Previous research on STEPPS has shown clinically significant improvement in mood and behaviour of participants (Black et al., 2008; Blum et al., 2008; Bos, van Well, Appelo, & Verbraak, 2010; Harvey, Black, & Blum, 2010). Participants in the randomised controlled trial (RCT) by Blum and colleagues (2008) conducted in the United States assigned to the STEPPS treatment showed improvement in mood, symptoms of BPD, impulsivity, and negative affectivity compare to those in the treatment as usual. Although the STEPPS program could be considered useful in correctional settings, the initial study by Black et al. (2008) was inconclusive as only one incident of NSSI was recorded during the study. However, in a more recent study by Black et al. (2013), due to a more significant number of participants, the STEPPS program intervention showed a significant reduction in NSSI behaviours and may have also contributed to correcting an individual's behaviour while incarcerated. This program is a brief intervention with 20 two-hour weekly sessions with detailed lesson materials co-facilitated by two therapists. It involves a system component that consist of family members, significant others, correctional officers and other correctional staff. This makes it ideal for implementation within

correctional and secure settings for sentenced offenders and for offenders who are on the move considering their rate of transfer, or release from incarceration as well as varying sentences given to incarcerated persons.

5.1.4 Staff training and Support program: In the care of incarcerated individuals, correctional staff play a vital role in the management and prevention of self-injury among the offenders (Marzano & Adler, 2007). Previous research on prison staff views on NSSI revealed a knowledge gap on NSSI behaviours among prisoners as the staff relied on other factors of what NSSI is about because of their limited views on the reasons behind self-harming behaviours (Kenning et al., 2010). Lack of training on mental health affects the ability of staff to understand and respond appropriately to incarcerated women who engage in NSSI (Kenning et al., 2010).

In this review, the importance of staff training is reiterated when about 82% of staff in the study of Ward and Bailey (2013) did not have training in mental health. Most of the staff reported a lack of understanding about NSSI and this is reflected in the type of service or response the women received (Ward & Bailey, 2013). These results support previous findings revealing setbacks staff experience in understanding NSSI the motive behind this behaviour, and staff having an aversion to individuals who engaged in NSSI (Kenning et al., 2010). A misinterpretation of the motive of engaging in NSSI was revealed in the study by Kenning et al. (2010) as prison staff interpreted the motive as intentional manipulation instead of a form of maladaptive communication from the women seeking help. A lack of understanding of NSSI or mental health disorders as a whole due to the lack of training can create a gap (barrier) between the staff and prisoner (Kenning et al., 2010). More staff training on the reason, motive, and how to respond to incarcerated women that engage in self-harm will help in reducing the unhelpful responses as a result of lack of understanding that increase the risk of self-harm among the women (Ward & Bailey, 2013). Patterson, Whittington, and Bogg

(2007) in their work suggest that the antipathy behaviour of staff towards self-injurers may increase the risk of self-harming and may adversely affect help-seeking behaviour of the individuals involved, preventing the willingness to engage in available interventions or services. According to the literature review by Usher, Power, & Wilton (2010), equipping staff that deal with individuals that engage in self-injury is mandatory. Awareness and intervention of SIB are provided for staff in the Correctional Service Canada through a program called Staff Suicide Prevention Training (Usher et al. 2010). Reducing the risk of self-harm and suicide among offenders through implementing staff training and support programs (Powis, 2002) was also emphasised in the reviewed by Corabian and colleagues (2013). These authors reviewed the work of Thompson, Powis, and Carradice (2008) and confirmed that without the appropriate theoretical self-injury framework on which the intervention is applied, staff would feel overwhelmed or burnt out, and consequently be ineffective in their responsibilities in caring for the individuals that engaged in NSSI. Currently, in the Correctional Service Canada, several staff training and support programs are being implemented to help address the issue of lack of understanding and staff burnout (Usher et al., 2010).

5.1.5 Positive and Trustworthy Prisoner-Staff Relationship: Previous research has shown that having a positive and trustworthy relationship between staff and prisoners is successful in the treatment of NSSI (Kenning et al., 2010). There are some factors significant for an intervention to be successful such as the severity of the problem, the client's belief about the therapy, and the skill level of the therapist (Knobloch-Fedders, 2008). However, the quality of the relationship between the therapist (service provider) and the client (service user) is most important in determining the effectiveness of the approach used (Knobloch-Fedders, 2008).

In this current review, having a strong working relationship with incarcerated women that engage in non-suicidal self-injury helps the staff to identify the women's risk signature (their motive, reason, and type of self-injury) which in turn helps with the type of intervention that will be appropriate to use, hence reducing or preventing non-suicidal self-injury (Walker et al., 2016). The findings of this review reiterate the need for a strong therapeutic relationship between a staff and a self-injurer as the predisposing factors or triggers can be identified earlier and the right measures implemented (Walsh, 2006). Usher and colleagues (2010) in their reviewed of the work of these authors Linehan (1999); Muehlenkamp (2006); Skegg (2005); Skeem, Louden, Polaschek, and Camp (2007) also noted that a strong working relationship between the service provider (staff) and the service user (incarcerated women) is one of the most significant factors in producing positive results regardless of the mode of intervention used. Therefore, despite the type of treatment or intervention used, the therapeutic alliance between the prisoner and staff, in this case, is the most crucial component that predicts whether or not an intervention implemented will be effective.

5.1.6 The use of good-bye letters after therapy completion: In this review, the impact of a good-bye letter after Psychodynamic Interpersonal Therapy (PIT) for self-harm among women was shown to promote continuous awareness and understanding of the mechanism of imprisoned women's self-harm (Walker et al., 2017b). Seen as a cognitive therapeutic technique, the letters at the end of therapy motivated the women to challenge and change their behaviour, thereby reducing self-harming episodes (Walker et al., 2017b). Studies have shown the use of letters as a therapeutic tool in therapeutic approaches (Boton, Howlett, Lago & Wright, 2004; Ryle & Kerr, 2002). As cited in the research of Walker and colleagues (2017b), previous research on writing from other techniques have shown benefits achieved from the use of writing in therapy (Francis & Pennebaker, 1992; Gortner, Rude, &

Pennebaker, 2006; Pennebaker, 1997). The use of letters which involves sharing of information helps in cementing the therapeutic relationship between the therapist and client and presents the clients with a new understanding to use in the process of discovering and commencing new skills (Ryle, 1990). A good-bye letter is a therapeutic tool that reflects the therapy an individual has utilised, and in the case of incarcerated women that engaged in NSSI, it helps in assimilation and understanding. The idea of using letters at the end of an intervention can be implemented in the use of any therapy among incarcerated women that self-injure to recount accomplishment and skills learned as well as inappropriate adaptive coping skills to change (Walker et al., 2017b).

5.1.7 Gender-specific Interventions: Of the eleven papers reviewed, only two papers reported gender-specific intervention - Sarkar and Beeley (2011) and Walker and colleagues (2017a). Sarkar and Beeley (2011) designed an algorithmic model of care that is theoretical and practice-based for incarcerated women that engaged in NSSI within a secure setting. Although the algorithmic model of care was promising in reducing the incidents of NSSI, it is an algorithm for immediate and short-term responses to NSSI only (Sarkar & Beeley, 2011). The program is also compromised by a lack of validation of the measure used in measuring the model fidelity and lack of inter-rater reliability assessment (Sarkar & Beeley, 2011). To date, no empirical studies showing the outcome of the implementation of this mode of treatment have been published.

The Psychodynamic Interpersonal Therapy (PIT) is another intervention specifically designed for incarcerated women who self-harm. This intervention was a pilot study not intended to test the effectiveness, even though it was reported as promising in managing NSSI among this population. The findings of the research of Walker and colleagues (2017a) is the first of its kind to explore PIT among imprisoned women who self-harm.

5.2 Gaps Identified:

5.2.1 Terminologies used: The terms used in describing the target behaviour (NSSI) in this current review varied considerably. The terms used for non-suicidal self-injury are self-harm, deliberate self-harm, repetitive self-harm, self-harming behaviours, self-injury, self-injurious behaviour, intentional self-injury, and parasuicidal behaviours. Notably also is the regional preference for terms used. In research conducted in the United Kingdom, for instance, self-harm is the term used to describe non-suicidal self-injury (Hawton et al., 2014; Hawton et al., 2016). In the U.S.A and Canada, self-injurious behaviour, self-injury, and non-suicidal self-injury are the common terms used.

It is challenging to claim with certainty the type of behaviour included in the studies and to identify the type of research addressing this behaviour to be included in reviews to synthesise vital information. Some researchers have sought to resolve this discrepancy by differentiating suicidal behaviours from non-suicidal (Hooley & Franklin, 2017; Klonsky, 2007; Klonsky, Muehlenkamp, Lewis, & Walsh, 2011; Muehlenkamp, Brausch, Quigley, & Whitlock, 2013; Power, 2011). Hooley and Franklin (2017) reiterated the need to distinguish between behaviours that are suicidal and non-suicidal using the benefits and barriers model of NSSI. The benefits and barriers model proposed by Hooley and Franklin (2017) states that individuals that engaged in NSSI do so to: 1) regulate affect; 2) gratify the urges for self-punishment; 3) affiliate with self-injury peers; and 4) communicate their distress and strength. Although NSSI is a risk factor for or predictor of suicide (Dixon-Gordon et al., 2012; Hooley & Franklin, 2017), NSSI is a different entity that needs a consensus in this field of research.

5.2.2 Outcome measures and participants: For studies that explored the impact of the same intervention for NSSI, there is a discrepancy in the outcome measures used. For instance, in the paper of Blanchette et al. (2011), Low et al. (2001), and Nee and Farman

(2005) that explored DBT intervention, the measures used as shown in Table 4 varied. Although the diagnosis (personality disorder) or settings of the participants might have influenced the use of the various measures, there is a possibility of an overestimated positive result in the studies and implications for practice. The discrepancy of the measures utilized affects the ability to synthesise the findings of the papers accurately. It will be essential for research using the same population to use the same measurements or exhaustive tools so that the results of the studies can be more accurately compared.

5.3 Implications for Future Research

The findings of this integrative review suggest that there are different interventions and gender-specific interventions that have shown promising results in targeting NSSI among incarcerated women. The challenges encountered in this review are the variance in terms used and the research designs reported in some papers that made it difficult to synthesise information that may have been relevant in this review. Of note, also is the defining characteristics of the participants in some studies and the study settings. Some researchers recruited participants diagnosed with BPD which may have influenced the outcome of the treatment evaluated (Black et al., 2013; Long et al., 2011; Low et al., 2001; Nee & Farman, 2005; Sarkar & Beeley, 2011).

From a research perspective, future studies should explore the treatment outcome of specific interventions within imprisoned women diagnosed with BPD or without BPD to identify the difference in response to specific treatments. This will help to address the emphasis of preventing NSSI among offenders who meet the criteria for BPD since NSSI is exhibited by both offenders or individuals with BPD and those without BPD (Glenn & Klonsky, 2013; Hooley & Franklin, 2017). Future research should also explore gender-specific interventions to identify interventions that target incarcerated women, specifically to

the possible differences that exist in the motives or reasons for engaging in NSSI between males and females. Exploring the effectiveness of NSSI interventions with women within different settings of the incarcerated population is another area that may contribute to the identification of effective interventions. According to Winicov (2019), it is a challenge to assess the intent behind an individual's self-harming behaviour and difficult to treat a behaviour like NSSI that has so many functions within different settings like the forensic hospital, correctional facilities or prisons. The functions range from manipulation of the environment and emotion regulation, to psychotic delusions or hallucination responses in the forensic settings and sensation seeking, self-punishment, and control/empowerment in correctional facilities (Jeglic, Vanderhoff, & Donovick, 2005; Power, 2016). It is unrealistic to prevent or treat self-injury as a single problem and apply a particular treatment (Winicov, 2019). Most importantly, is research that will address the discrepancy in terminologies used in this field that may hinder the type of behaviours included or excluded in a study and subsequently the findings of those studies.

5.4 Limitations

This study reviewed 11 papers that reported promising results for the intervention of non-suicidal self-injury among incarcerated women in correctional facilities and secure settings. Notwithstanding, the integrity of the papers are compromised by the definitional discrepancy that exists in this field of research, lack of comparison or control groups, and variations in the behavioural outcome measures used. Due to the inconsistency in terminologies used, in this integrative review, the term NSSI was used, and its definition by Klonsky and Muehlenkamp (2007) and only studies that defined and included this type of behaviour were included. The varying sample sizes in the papers is also noted as a limitation as they range from 9 to 94 incarcerated women and 14 staff.

The possibility that relevant papers may have been missed exists, although efforts were made to carry out a thorough literature review. A broad-range search of strategies was implemented after the initial search to avoid missing any paper that could impact the study findings. The reference lists of the retrieved articles were also researched to decrease the likelihood of missed articles. The focus of this review was on incarcerated women within correctional facilities or secure settings (psychiatric or forensic hospitals), hence the review was restricted to studies conducted in this area. Only articles published in the English language were included, making it possible that valuable information could have been lost in studies not conducted in the English language. Challenging also was the application of quality assessment tools to appraise the quality of the included papers as some papers were not appraised.

Chapter 6 Conclusion

The purpose of this integrative review was to generate information on the effectiveness of NSSI interventions among incarcerated women within correctional, mental health and forensic facilities. To the best of our knowledge, this is the first integrative review that sought to integrate different study types specific to NSSI interventions among incarcerated women to show their effectiveness in treating NSSI. The prevalence of NSSI among incarcerated women is notably high despite the available methods of treatment before this review. The possibility of several factors influencing the effectiveness of the interventions such as variation in terms used in describing the behaviour, reasons for engaging in NSSI, early identification of risk factors through assessment, correlates, and age of NSSI onset cannot be undermined. To ensure the effectiveness of NSSI interventions among this population, the above factors should be considered and health care providers need first to understand NSSI disorder, and the various functions of the behaviour from the self-injurer point of view in order to implement the right intervention appropriate for the behaviour.

The emerging interventions for NSSI among incarcerated women were found to be promising in their treatment for NSSI. Some of the interventions reported were not specific to incarcerated women. The findings of this review found two of the emerging interventions (DBT and STEPPS) to be designed for incarcerated women with a borderline personality disorder (BPD). Although BPD is associated with NSSI, not all individuals displaying NSSI disorder are diagnosed with BDP. Two of the interventions noted (Algorithm of care and Psychodynamic Interpersonal Therapy), were specifically designed for the treatment of NSSI among incarcerated women. Nevertheless, these gender-specific interventions were compromised in their effectiveness in treating NSSI. To date, there is no empirical research demonstrating their effectiveness among this population. As noted, the use of good-bye letters as a form of intervention can complement other methods of intervention used in treating NSSI.

The staff training and support program as well as having a positive and trustworthy prisoner-staff relationship are not interventions per se but are seen to play a vital role in providing a platform on which other interventions can be implemented.

From the nursing perspective, no evidence-based nursing interventions have been found, although correctional nurses implement the identified emerging interventions to offenders who engaged in NSSI. This is supported by the research by Peternelj-Taylor and Woods (2019), who reported on the role, responsibilities, and learning needs of nurses working in correctional facilities. Among the health care professional population in correctional or secure facilities, nurses represent the most substantial part (Peternelj-Taylor & Woods, 2019). As front-line health professionals, nurses deal with a significant number of incarcerated individuals who present with different mental health disorders, especially NSSI disorder. As reported by Peternelj-Taylor and Woods (2019) regarding the learning needs of correctional nurses, assessment for suicide, mental health, and self-harm were suggested as very significant in the care of incarcerated persons. Correctional nurses also play an essential role in individual therapeutic interventions as well as care of mentally ill incarcerated persons. The effort of correctional nurses as first responders to incarcerated individuals that engage in NSSI is not left unrecognised, although future research is needed in this area to generate evidence-based interventions. This is evident in the work of Roth and Pressé (2003), who explored nursing interventions based on DBT, for female offenders who engaged in parasuicidal behaviour. The treatment approach as reported by the authors provides practical, effective nursing interventions that include pre-treatment, orientation strategies to use when there is a threat to engage in self-harm and during an episode of self-harm, as well as a follow-up treatment (Roth & Pressé, 2003). The researchers reported a drastic reduction in the incidence of self-harm in the unit where the interventions were implemented (Roth & Pressé, 2003). Furthermore, they reported that following the implementation of the DBT based nursing interventions, the self-

harm incidents that used to occur weekly or even daily on the female offender unit rarely occurred as they were efficiently handled by the nurses (Roth & Pressé, 2003). Despite the promising results from the intervention, their work was an opinion-based paper on the nurses' experiences in the female forensic unit as there is no empirical evidence to support the claims of the paper.

Based on the small sample sizes in the articles reviewed and the gaps identified in the literature in this field, the interventions identified that show promising results in treating and preventing NSSI behaviour suggest that more studies need to be conducted in this area. Therefore, the priorities for future research should include evidence-based research exploring interventions for imprisoned women with or without a diagnosis of BPD who engage in NSSI. Empirical and qualitative research focusing on interventions for NSSI that are specific to women in custody, and studies that explore the effectiveness of interventions within different settings are also recommended, as well as research that will investigate the variations in terminologies that plague this field of study.

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Appendix A

QUALITY ASSESSMENT TOOL FOR QUANTITATIVE STUDIES

COMPONENT RATINGS

A) SELECTION BIAS

(Q1) Are the individuals selected to participate in the study likely to be representative of the target population?

1 Very likely
2 Somewhat likely
3 Not likely
4 Can't tell

(Q2) What percentage of selected individuals agreed to participate?

1 80 - 100% agreement
2 60 – 79% agreement
3 less than 60% agreement
4 Not applicable
5 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

B) STUDY DESIGN

Indicate the study design

1 Randomized controlled trial
2 Controlled clinical trial
3 Cohort analytic (two group pre + post)
4 Case-control
5 Cohort (one group pre + post (before and after))
6 Interrupted time series
7 Other specify _____
8 Can't tell

Was the study described as randomized? If NO, go to Component C.

No Yes

If Yes, was the method of randomization described? (See dictionary)

No Yes

If Yes, was the method appropriate? (See dictionary)

No Yes

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

1

C) CONFOUNDERS

(Q1) Were there important differences between groups prior to the intervention?

1 Yes
2 No
3 Can't tell

The following are examples of confounders:

1 Race
2 Sex
3 Marital status/family
4 Age
5 SES (income or class)
6 Education
7 Health status
8 Pre-intervention score on outcome measure

(Q2) If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?

1 80 – 100% (most)
2 60 – 79% (some)
3 Less than 60% (few or none)
4 Can't Tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

D) BLINDING

(Q1) Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?

1 Yes
2 No
3 Can't tell

(Q2) Were the study participants aware of the research question?

1 Yes
2 No
3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

E) DATA COLLECTION METHODS

(Q1) Were data collection tools shown to be valid?

1 Yes
2 No
3 Can't tell

(Q2) Were data collection tools shown to be reliable?

1 Yes
2 No
3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

F) WITHDRAWALS AND DROP-OUTS

(Q1) Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?

1 Yes
2 No
3 Can't tell
4 Not Applicable (i.e. one time surveys or interviews)

(Q2) Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).

1 80 -100%
2 60 - 79%
3 less than 60%
4 Can't tell
5 Not Applicable (i.e. Retrospective case-control)

RATE THIS SECTION	STRONG	MODERATE	WEAK	
See dictionary	1	2	3	Not Applicable

G) INTERVENTION INTEGRITY

(Q1) What percentage of participants received the allocated intervention or exposure of interest?

1 80 -100%
2 60 - 79%
3 less than 60%
4 Can't tell

(Q2) Was the consistency of the intervention measured?

1 Yes
2 No
3 Can't tell

(Q3) Is it likely that subjects received an unintended intervention (contamination or co-intervention) that may influence the results?

4 Yes
5 No
6 Can't tell

H) ANALYSES

(Q1) Indicate the unit of allocation (circle one)

community organization/institution practice/office individual

(Q2) Indicate the unit of analysis (circle one)

community organization/institution practice/office individual

(Q3) Are the statistical methods appropriate for the study design?

1 Yes
2 No
3 Can't tell

(Q4) Is the analysis performed by intervention allocation status (i.e. intention to treat) rather than the actual intervention received?

1 Yes
2 No
3 Can't tell

GLOBAL RATING

COMPONENT RATINGS
Please transcribe the information from the gray boxes on pages 1-4 onto this page. See dictionary on how to rate this section.

A	**SELECTION BIAS**	**STRONG**	**MODERATE**	**WEAK**	
		1	2	3	
B	**STUDY DESIGN**	**STRONG**	**MODERATE**	**WEAK**	
		1	2	3	
C	**CONFOUNDERS**	**STRONG**	**MODERATE**	**WEAK**	
		1	2	3	
D	**BLINDING**	**STRONG**	**MODERATE**	**WEAK**	
		1	2	3	
E	**DATA COLLECTION METHOD**	**STRONG**	**MODERATE**	**WEAK**	
		1	2	3	
F	**WITHDRAWALS AND DROPOUTS**	**STRONG**	**MODERATE**	**WEAK**	
		1	2	3	Not Applicable

GLOBAL RATING FOR THIS PAPER (circle one):

1	STRONG	(no WEAK ratings)
2	MODERATE	(one WEAK rating)
3	WEAK	(two or more WEAK ratings)

With both reviewers discussing the ratings:

Is there a discrepancy between the two reviewers with respect to the component (A-F) ratings?

No Yes

If yes, indicate the reason for the discrepancy

1	Oversight
2	Differences in interpretation of criteria
3	Differences in interpretation of study

Final decision of both reviewers (circle one):

1	**STRONG**
2	**MODERATE**
3	**WEAK**

Appendix B

Quality Assessment Tool for Quantitative Studies Dictionary

The purpose of this dictionary is to describe items in the tool thereby assisting raters to score study quality. Due to under-reporting or lack of clarity in the primary study, raters will need to make judgements about the extent that bias may be present. When making judgements about each component, raters should form their opinion based upon information contained in the study rather than making inferences about what the authors intended. Mixed methods studies can be quality assessed using this tool with the quantitative component of the study.

A) SELECTION BIAS

(Q1) Participants are more likely to be representative of the target population if they are randomly selected from a comprehensive list of individuals in the target population (score very likely). They may not be representative if they are referred from a source (e.g. clinic) in a systematic manner (score somewhat likely) or self-referred (score not likely).

(Q2) Refers to the % of subjects in the control and intervention groups that agreed to participate in the study before they were assigned to intervention or control groups.

B) STUDY DESIGN

In this section, raters assess the likelihood of bias due to the allocation process in an experimental study. For observational studies, raters assess the extent that assessments of exposure and outcome are likely to be independent. Generally, the type of design is a good indicator of the extent of bias. In stronger designs, an equivalent control group is present and the allocation process is such that the investigators are unable to predict the sequence.

Randomized Controlled Trial (RCT)

An experimental design where investigators randomly allocate eligible people to an intervention or control group. A rater should describe a study as an RCT if the randomization sequence allows each study participant to have the same chance of receiving each intervention and the investigators could not predict which intervention was next. If the investigators do not describe the allocation process and only use the words 'random' or 'randomly', the study is described as a controlled clinical trial.

See below for more details.

Was the study described as randomized?

Score YES, if the authors used words such as random allocation, randomly assigned, and random assignment.

Score NO, if no mention of randomization is made.

Was the method of randomization described?

Score YES, if the authors describe any method used to generate a random allocation sequence.

Score NO, if the authors do not describe the allocation method or describe methods of allocation such as alternation, case record numbers, dates of birth, day of the week, and any allocation procedure that is entirely transparent before assignment, such as an open list of random numbers of assignments.
If NO is scored, then the study is a controlled clinical trial.

Was the method appropriate?

Score YES, if the randomization sequence allowed each study participant to have the same chance of receiving each intervention and the investigators could not predict which intervention was next. Examples of appropriate approaches include assignment of subjects by a central office unaware of subject characteristics, or sequentially numbered, sealed, opaque envelopes.

Score NO, if the randomization sequence is open to the individuals responsible for recruiting and allocating participants or providing the intervention, since those individuals can influence the allocation process, either knowingly or unknowingly.

If NO is scored, then the study is a controlled clinical trial.

Controlled Clinical Trial (CCT)
An experimental study design where the method of allocating study subjects to intervention or control groups is open to individuals responsible for recruiting subjects or providing the intervention. The method of allocation is transparent before assignment, e.g. an open list of random numbers or allocation by date of birth, etc.

Cohort analytic (two group pre and post)
An observational study design where groups are assembled according to whether or not exposure to the intervention has occurred. Exposure to the intervention is not under the control of the investigators. Study groups might be non-equivalent or not comparable on some feature that affects outcome.

Case control study
A retrospective study design where the investigators gather 'cases' of people who already have the outcome of interest and 'controls' who do not. Both groups are then questioned or their records examined about whether they received the intervention exposure of interest.

Cohort (one group pre + post (before and after)
The same group is pretested, given an intervention, and tested immediately after the intervention. The intervention group, by means of the pretest, act as their own control group.

Interrupted time series
A study that uses observations at multiple time points before and after an intervention (the 'interruption'). The design attempts to detect whether the intervention has had an effect significantly greater than any underlying trend over time. Exclusion: Studies that do not have a clearly defined point in time when the intervention occurred and at least three data points before and three after the intervention

Other:
One time surveys or interviews

C) CONFOUNDERS

By definition, a confounder is a variable that is associated with the intervention or exposure and causally related to the outcome of interest. Even in a robust study design, groups may not be balanced with respect to important variables prior to the intervention. The authors should indicate if confounders were controlled in the design (by stratification or matching) or in the analysis. If the allocation to intervention and control groups is randomized, the authors must report that the groups were balanced at baseline with respect to confounders (either in the text or a table).

D) BLINDING

(Q1) Assessors should be described as blinded to which participants were in the control and intervention groups. The purpose of blinding the outcome assessors (who might also be the care providers) is to protect against detection bias.

(Q2) Study participants should not be aware of (i.e. blinded to) the research question. The purpose of blinding the participants is to protect against reporting bias.

E) DATA COLLECTION METHODS

Tools for primary outcome measures must be described as reliable and valid. If 'face' validity or 'content' validity has been demonstrated, this is acceptable. Some sources from which data may be collected are described below:

Self reported data includes data that is collected from participants in the study (e.g. completing a questionnaire, survey, answering questions during an interview, etc.).

Assessment/Screening includes objective data that is retrieved by the researchers. (e.g. observations by investigators).

Medical Records/Vital Statistics refers to the types of formal records used for the extraction of the data.

Reliability and validity can be reported in the study or in a separate study. For example, some standard assessment tools have known reliability and validity.

F) WITHDRAWALS AND DROP-OUTS

Score **YES** if the authors describe BOTH the numbers and reasons for withdrawals and drop-outs.

Score **NO** if either the numbers or reasons for withdrawals and drop-outs are not reported.

Score **NOT APPLICABLE** if the study was a one-time interview or survey where there was not follow-up data reported.

The percentage of participants completing the study refers to the % of subjects remaining in the study at the final data collection period in all groups (i.e. control and intervention groups).

G) INTERVENTION INTEGRITY

The number of participants receiving the intended intervention should be noted (consider both frequency and intensity). For example, the authors may have reported that at least 80 percent of the participants received the complete intervention. The authors should describe a method of measuring if the intervention was provided to all participants the same way. As well, the authors should indicate if subjects received an unintended intervention that may have influenced the outcomes. For example, co-intervention occurs when the study group receives an additional intervention (other than that intended). In this case, it is possible that the effect of the intervention may be over-estimated. Contamination refers to situations where the control group accidentally receives the study intervention. This could result in an under-estimation of the impact of the intervention.

H) ANALYSIS APPROPRIATE TO QUESTION

Was the quantitative analysis appropriate to the research question being asked?

An intention-to-treat analysis is one in which all the participants in a trial are analyzed according to the intervention to which they were allocated, whether they received it or not. Intention-to-treat analyses are favoured in assessments of effectiveness as they mirror the noncompliance and treatment changes that are likely to occur when the intervention is used in practice, and because of the risk of attrition bias when participants are excluded from the analysis.

Component Ratings of Study:

For each of the six components A – F, use the following descriptions as a roadmap.

A) SELECTION BIAS

Good: The selected individuals are very likely to be representative of the target population (Q1 is 1) and there is greater than 80% participation (Q2 is 1).

Fair: The selected individuals are at least somewhat likely to be representative of the target population (Q1 is 1 or 2); and there is 60 - 79% participation (Q2 is 2). 'Moderate' may also be assigned if Q1 is 1 or 2 and Q2 is 5 (can't tell).

Poor: The selected individuals are not likely to be representative of the target population (Q1 is 3); or there is less than 60% participation (Q2 is 3) or selection is not described (Q1 is 4); and the level of participation is not described (Q2 is 5).

B) DESIGN

Good: will be assigned to those articles that described RCTs and CCTs.

Fair: will be assigned to those that described a cohort analytic study, a case control study, a cohort design, or an interrupted time series.

Weak: will be assigned to those that used any other method or did not state the method used.

C) CONFOUNDERS

Good: will be assigned to those articles that controlled for at least 80% of relevant confounders (Q1 is 2); or (Q2 is 1).

Fair: will be given to those studies that controlled for 60 – 79% of relevant confounders (Q1 is 1) and (Q2 is 2).

Poor: will be assigned when less than 60% of relevant confounders were controlled (Q1 is 1) and (Q2 is 3) or control of confounders was not described (Q1 is 3) and (Q2 is 4).

D) BLINDING

Good: The outcome assessor is not aware of the intervention status of participants (Q1 is 2); and the study participants are not aware of the research question (Q2 is 2).

Fair: The outcome assessor is not aware of the intervention status of participants (Q1 is 2); or the study participants are not aware of the research question (Q2 is 2).

Poor: The outcome assessor is aware of the intervention status of participants (Q1 is 1); and the study participants are aware of the research question (Q2 is 1); or blinding is not described (Q1 is 3 and Q2 is 3).

E) DATA COLLECTION METHODS

Good: The data collection tools have been shown to be valid (Q1 is 1); and the data collection tools have been shown to be reliable (Q2 is 1).

Fair: The data collection tools have been shown to be valid (Q1 is 1); and the data collection tools have not been shown to be reliable (Q2 is 2) or reliability is not described (Q2 is 3).

Poor: The data collection tools have not been shown to be valid (Q1 is 2) or both reliability and validity are not described (Q1 is 3 and Q2 is 3).

F) WITHDRAWALS AND DROP-OUTS - a rating of:

Good: will be assigned when the follow-up rate is 80% or greater (Q1 is 1 and Q2 is 1).

Fair: will be assigned when the follow-up rate is 60 – 79% (Q2 is 2) OR Q1 is 4 or Q2 is 5.

Poor: will be assigned when a follow-up rate is less than 60% (Q2 is 3) or if the withdrawals and drop-outs were not described (Q1 is No or Q2 is 4).

Not Applicable: if Q1 is 4 or Q2 is 5.

Appendix C

CASP
Critical Appraisal Skills Programme

Paper for appraisal and reference: .....

Section A: Are the results valid?

1. Was there a clear statement of the aims of the research?

Yes ☐
Can't Tell ☐
No ☐

HINT: Consider
- what was the goal of the research
- why it was thought important
- its relevance

Comments:

2. Is a qualitative methodology appropriate?

Yes ☐
Can't Tell ☐
No ☐

HINT: Consider
- If the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants
- Is qualitative research the right methodology for addressing the research goal

Comments:

Is it worth continuing?

3. Was the research design appropriate to address the aims of the research?

Yes ☐
Can't Tell ☐
No ☐

HINT: Consider
- if the researcher has justified the research design (e.g. have they discussed how they decided which method to use)

Comments:

CASP
Critical Appraisal Skills Programme

4. Was the recruitment strategy appropriate to the aims of the research?

Yes ☐
Can't Tell ☐
No ☐

HINT: Consider
- If the researcher has explained how the participants were selected
- If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study
- If there are any discussions around recruitment (e.g. why some people chose not to take part)

Comments:

5. Was the data collected in a way that addressed the research issue?

Yes ☐
Can't Tell ☐
No ☐

HINT: Consider
- If the setting for the data collection was justified
- If it is clear how data were collected (e.g. focus group, semi-structured interview etc.)
- If the researcher has justified the methods chosen
- If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews are conducted, or did they use a topic guide)
- If methods were modified during the study. If so, has the researcher explained how and why
- If the form of data is clear (e.g. tape recordings, video material, notes etc.)
- If the researcher has discussed saturation of data

Comments:

CASP
Critical Appraisal Skills Programme

6. Has the relationship between researcher and participants been adequately considered?

Yes ☐
Can't Tell ☐
No ☐

HINT: Consider
- If the researcher critically examined their own role, potential bias and influence during (a) formulation of the research questions (b) data collection, including sample recruitment and choice of location
- How the researcher responded to events during the study and whether they considered the implications of any changes in the research design

Comments:

Section B: What are the results?

7. Have ethical issues been taken into consideration?

Yes ☐
Can't Tell ☐
No ☐

HINT: Consider
- If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained
- If the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)
- If approval has been sought from the ethics committee

Comments:

CASP
Critical Appraisal Skills Programme

8. Was the data analysis sufficiently rigorous?

Yes ☐
Can't Tell ☐
No ☐

HINT: Consider
- If there is an in-depth description of the analysis process
- If thematic analysis is used. If so, is it clear how the categories/themes were derived from the data
- Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process
- If sufficient data are presented to support the findings
- To what extent contradictory data are taken into account
- Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation

Comments:

9. Is there a clear statement of findings?

Yes ☐
Can't Tell ☐
No ☐

HINT: Consider whether
- If the findings are explicit
- If there is adequate discussion of the evidence both for and against the researcher's arguments
- If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst)
- If the findings are discussed in relation to the original research question

Comments:

CASP
Critical Appraisal Skills Programme

Section C: Will the results help locally?

10. How valuable is the research?

HINT: Consider

- If the researcher discusses the contribution the study makes to existing knowledge or understanding (e.g. do they consider the findings in relation to current practice or policy, or relevant research-based literature
- If they identify new areas where research is necessary
- If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used

Comments:

Appendix D

Grading System Created by Down et al. (2009), Based on the Work of Lincoln and Guba, (1985)

A	No, or few flaws. The study credibility, transferability, dependability, and confirmability is high
B	Some flaws, unlikely to affect the credibility, transferability, dependability and/or confirmability of the study
C	Some flaws that may affect the credibility, transferability and/or confirmability of the study.
D	Significant flaws that are very likely to affect the credibility, transferability, dependability and /or confirmability of the study